Resilience in college students following childhood maltreatment

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Dedication

This dissertation is dedicated to every child who has experienced hardship and wants to believe that there is a way forward, a path to healing, and a road to a life worth living. This is also dedicated to all the participants in this study, who shared so much of themselves in the service of my research, and it would not have been possible without them. Lastly, this dissertation is dedicated to all the clients I have had who have asked if their traumas mean that they will be stuck or broken forever. I hope this research can help them recognize their inherent strengths and resilience.

Abstract

Objective: I examined the relations between childhood maltreatment and domains of functioning (i.e., relational functioning, educational functioning, autonomy, drinking consequences, psychological functioning) and the moderators of these relations among college students. I hypothesized that most students with a history of childhood maltreatment would display resilience in the domains of functioning, both cross-sectionally and across time, though more students without a history of childhood maltreatment would be categorized as resilient. I also hypothesized that current stressors would moderate the relation between childhood maltreatment and functioning as a risk factor, whereas emotion regulation, meaning-making, and social support would buffer the relations between childhood maltreatment and functioning.

Participants and Methods: Data were collected at two time points from undergraduate students at the beginning (N = 312) and end (N = 241) of the semester.

Results: The majority of students with low and moderate-to-severe childhood maltreatment were resilient in most domains at both time points and across time. For relational functioning and psychological functioning, the proportion of students with histories of maltreatment who were resilient was significantly different than those without at Time 1. Recent stressors, emotion regulation, meaning-making, and social support did not moderate the relation between maltreatment and any outcome.

Conclusions: Research on maltreatment in undergraduate college students needs to acknowledge resilience, as many students with histories of maltreatment display resilient functioning. Further research on potential moderators is needed.

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Resilience in college students following childhood maltreatment

Research has long established the links between childhood maltreatment and negative outcomes later in life (e.g., Felitti et al., 1998). However, a great deal of research has shown that many people are resilient - that is, they have overcome traumatic childhoods and avoided later negative outcomes (e.g., Masten, 2001). The current study used a resilience framework to investigate the experiences of college students with varying levels of childhood maltreatment, including the prevalence of resilience among maltreated students, predictors of resilience, and moderators of the relations between maltreatment and resilience. I first define maltreatment and review research on its prevalence, highlighting the experiences of college students as my population of interest. Then, I review past research on the prevalence and correlates of resilience following child maltreatment. Lastly, I describe the methods and results of this study, followed by a discussion of the results and their limitations and implications.

Childhood Maltreatment

Many major organizations, including the World Health Organization (2017) and the Centers for Disease Control and Prevention (2019), define childhood maltreatment as experiences of abuse or neglect in childhood. Similarly, academic researchers define childhood maltreatment as experiences of physical, emotional, and sexual abuse and physical and emotional neglect (Bernstein & Fink, 1998). Physical abuse is described as an action taken by a caretaker (e.g., striking a child) that risks or results in injury (Knutson, 1995). Emotional abuse is operationalized as verbal assaults on a child's sense of well-being or worth, as well as humiliating, demeaning, or threatening behavior directed toward the child (Bernstein & Fink, 1998). Child sexual abuse is defined as

sexual activities involving a child and the presence of an abusive condition, such as coercion or a large age gap between participants (Finkelhor, 1994). Physical neglect is focused on the failure of caregivers to provide for the basic physical needs of a child, such as food, shelter, and safety, and emotional neglect involves the failure of caretakers to meet a child's emotional and psychological needs, such as by not providing love and support (Bernstein & Fink, 1998). Childhood maltreatment is one type of adverse childhood experience (ACE). ACEs were originally defined as childhood maltreatment and household dysfunction (e.g., substance abuse in the home; Felitti et al., 1998), though the definition has been broadened to include other experiences, such as poverty and neighborhood violence (Morrill et al., 2019). Research on both childhood maltreatment and adverse childhood experiences are reviewed here.

Prevalence of Childhood Maltreatment

A meta-analysis of 244 publications and more than 143,000 participants provided information on the prevalence rates for various types of childhood maltreatment in North America (Stoltenborgh et al., 2015). These rates were 20.1% (females) and 8.0% (males) for childhood sexual abuse, 24.0% for childhood physical abuse, 36.5% for childhood emotional abuse, 19.2% for physical neglect, and 14.5% for emotional neglect. In an assessment of methodological moderators of prevalence rates using the same set of studies (Prevoo et al., 2017), studies using college student samples (compared to cohort, high school, occupational group, and population samples) reported the highest prevalence rates, with 19.9% of females and 10.8% of males reporting childhood sexual abuse, 40.3% of college students reporting physical abuse, and 72.4% of college students reporting emotional abuse (Prevoo et al., 2017). Additionally, multi-item measures of

childhood maltreatment were more sensitive than single-item measures, and led to higher prevalence rates. Finally, studies conducted with adult respondents had higher prevalence rates than those conducted with child respondents.

These meta analytic findings showing higher rates of maltreatment among college students make this a crucial population to study. Many students enter college with a history of childhood maltreatment and often multiple forms of maltreatment (e.g., Merians et al., 2019; Metzler et al., 2017). Furthermore, evidence has suggested that students with a history of adversity were more vulnerable to dropping out of school (Duncan, 2000). This is problematic as college graduates earn up to twice as much as those without a degree (*Labor Force Statistics from the Current Population Survey*, 2016). This income disparity can exacerbate health difficulties seen in those with a history of childhood maltreatment, with one study finding that lower household incomes were associated with stronger relations between maltreatment and poorer health (Monnat & Chandler, 2015).

Childhood Maltreatment and Later Life Functioning

Mental and physical health. Childhood maltreatment has been linked to poorer health outcomes in numerous studies. For example, in a seminal study by Felitti et al. (1998) of members of a California health maintenance organization, exposure to ACEs, including maltreatment, was associated with poorer health across many of the body's systems. Several meta-analyses of the links between childhood adversity and health outcomes have indicated a graded relation between more childhood adversity and poorer health, including higher rates of cardiovascular disease, respiratory disease, gastrointestinal disease, headaches, and autoimmune disease (e.g., Campbell et al., 2016;

Kalmakis & Chandler, 2015; Petruccelli et al., 2019). Additionally, those with the most severe exposure to childhood maltreatment were found to die nearly 20 years earlier than those without a history of maltreatment (Brown et al., 2009). Childhood maltreatment has been linked to health risk behaviors in addition to health outcomes. For example, a history of childhood maltreatment was associated with an increased likelihood of smoking tobacco, binge drinking, and substance use (for a review, see Kalmakis & Chandler, 2015). Additionally, these health risk behaviors were more likely to occur at vulnerable times in development, such as during adolescence or pregnancy.

In addition to physical health outcomes, childhood maltreatment has been linked to poorer mental health. Maltreatment was associated with a variety of diagnoses, such that more experiences of childhood maltreatment were associated with increased risk of depression, anxiety, and posttraumatic stress disorder (for a review, see Kalmakis & Chandler, 2015). Childhood maltreatment was also associated with substance dependence and this relation was partially mediated by mood and anxiety disorders (Kalmakis & Chandler, 2015). In other research, specific aspects of maltreatment were found to be linked to suicide attempts. For example, a national study found that childhood physical and sexual abuse and witnessing domestic violence increased the likelihood of suicide attempts, such that preventing the experiences of maltreatment could decrease suicide attempts by 50% among women and by 33% among men (Afifi et al., 2008).

College students. Of the research done on the associations between childhood maltreatment and later-life outcomes, fewer studies have examined these relations in samples of college students. Of the research that does exist, exposure to more childhood adversity was consistently associated with poorer outcomes, including poorer mental

health (Hinojosa et al., 2019; Karatekin, 2018a, 2018b; Karatekin & Ahluwalia, 2020; Khrapatina & Berman, 2017; Merians et al., 2019; Windle et al., 2018), poorer physical health (Hinojosa et al., 2019; Khrapatina & Berman, 2017; Windle et al., 2018), poorer sleep (Windle et al., 2018), substance use issues (Forster et al., 2018; Windle et al., 2018), and lower life satisfaction (Khrapatina & Berman, 2017).

However, the findings were more mixed for academic outcomes. Research has found that experiencing more childhood adversity was linked to experiencing more academic barriers, including barriers related to health and family (Hinojosa et al., 2019). Childhood maltreatment was associated with college dropout in the one located study on the topic, with college students with a history of childhood maltreatment being more likely to drop out compared to college students without a history of maltreatment (Duncan, 2000). Students who experienced multiple forms of maltreatment were at the highest risk. However, when specific types of maltreatment were examined, students who had experienced childhood physical abuse or childhood emotional abuse were not more likely than students who had not experienced those forms of maltreatment to drop out. Students with a history of childhood sexual abuse were more likely to drop out than students who did not experience childhood sexual abuse, yet, when compared to students who had experienced multiple forms of maltreatment, were more likely to be enrolled (Duncan, 2000). This provided some evidence that the key risk factor for drop out was cumulative exposure to childhood maltreatment, rather than one subtype.

Another study investigated whether childhood physical and sexual abuse predicted educational outcomes (i.e., no secondary school qualifications, gained higher school certificate, attended university, and gained a university degree), above and beyond

known covariates (e.g., parental education, socioeconomic status) in a New Zealand sample (Boden et al., 2007). After adjusting for covariates, childhood sexual abuse only predicted whether participants gained a university degree, with those who experienced it being less likely to have gained a degree. Childhood physical abuse only predicted gaining a higher school certificate, again with those who experienced childhood physical abuse being less likely to have achieved this certificate (Boden et al., 2007). Although this study did not assess cumulative exposure to childhood maltreatment, the findings are similarly mixed by abuse type as in the Duncan (2000) study.

Research investigating links between childhood maltreatment and academic performance was similarly mixed. One study found that students with experiences of childhood sexual or physical abuse had lower grade point averages (GPAs) than students without a history of those forms of maltreatment (Gibby-Smith, 1995). However, the same study did not find an association between childhood emotional abuse and GPA. In a prospective, longitudinal study of children in Great Britain, those who had experienced childhood physical abuse had greater odds of having poor educational qualifications, indicated by not obtaining A-level qualifications or scoring a low grade on their examination (Jaffee et al., 2018). Conversely, one study examined an aggregate measure of childhood adversity that included six domains of childhood adversity (i.e., property crimes, physical assault, child maltreatment, peer and sibling victimization, witnessing and indirect victimization, sexual victimization) and found that neither cumulative exposure to adversity nor the individual categories of adversity predicted GPA (Elliott et al., 2009). However, cumulative exposure to adversity did predict scores on measures of college adjustment. Although one study found a statistically significant association

between childhood adversity and GPA, the magnitude of the effect was small-to-negligible, when comparing students with high exposure to childhood adversity to those with no or little exposure (Merians et al., 2019).

Resilience after Childhood Adversity

Much of the research that has specifically focused on childhood maltreatment has tended to investigate increased risk for negative outcomes, taking a deficit-based approach (Ellis et al., 2020). Whereas researchers can study the negative impacts of childhood maltreatment, they can also investigate resilience in the face of such adversity. Fewer studies look at positive adaptation or resilience (vs. deficits) specifically after experiences of childhood maltreatment. Of the research that takes this approach, some studies operationalize resilience as positive adaptation in a specific domain (e.g., mental health) and others operationalize resilience as positive adaptation in multiple domains of life functioning. Furthermore, some studies investigate resilience after a specific event, whereas others look at adversity or maltreatment more generally.

Resilience is a complex construct and its definition has changed over time, further complicating a synthesis of the existing literature. In research on child maltreatment in child and adolescent samples, resilience has typically been defined as displaying average functioning, a lack of trauma symptoms or pathology, and/or accomplishing stage-salient tasks following adversity (Walsh et al., 2010). This definition of resilience is multidimensional, examining potentially positive adaptation across all these domains. Research on children who have experienced maltreatment has often assessed multiple forms of maltreatment and multiple aspects of functioning (Walsh et al., 2010).

Studies investigating resilience in children typically have found that most children are resilient after experiences of childhood maltreatment, although exact prevalence rates vary based on the measurement and operationalization of resilience (Walsh et al., 2010). In fact, resilience has been termed "ordinary magic" by some researchers (Masten, 2001). In a review of the literature, resilience in children was found to generally be assessed in terms of three domains of functioning: behavioral/emotional functioning, social functioning, and academic functioning (Walsh et al., 2010). In general, when looking at a single domain of functioning, the majority of children were resilient, with between 43-66% displaying resilient behavioral/emotional functioning, 61% displaying resilient social functioning, and 64% displaying resilient academic functioning (Walsh et al., 2010). These patterns were visible in individual studies as well. For example, in one of the leading studies of resilience, Project Competence, among 72 children who experienced high adversity (including maltreatment but also other traumas such as death of a parent), 60% were categorized as resilient, or demonstrating adequate competence despite high adversity (Masten et al., 1999). Resilient children were found to have greater resources, particularly higher quality parenting and higher intelligence, compared to their maladaptive peers (Masten et al., 1999). In another study, which investigated resilience in a sample of maltreated Latinx children and focused on social functioning, the majority of maltreated children were in the moderate or high resilience groups (61%), although the percentage of maltreated children in these resilience categories was lower than the percentage of non-maltreated children in the moderate or high resilience groups (81%; Flores et al., 2005).

In research on resilience in adults who experienced childhood maltreatment, most displayed resilience. Many studies in this area have investigated resilience after a single type of childhood maltreatment, with childhood sexual abuse being particularly well studied. In a review of studies that specifically examined resilience after childhood sexual abuse, approximately half of adults did not develop psychological problems after exposure to childhood sexual abuse, indicating resilience in that domain (Ronan et al., 2009). Another study (Banyard & Williams, 2007) broadened the definition of resilience to be multidimensional, including mental health (e.g., low trauma symptoms), well-being (e.g., self-esteem), substance use (e.g., no alcohol abuse), social functioning (e.g., healthy relationships), good sexual functioning, conduct (e.g., not reported for abusing own children), and work (e.g., full-time employment). The researchers found evidence of resilience in female survivors of sexual abuse, who reported resilient outcomes in six to seven of the 13 domains assessed on average (Banyard & Williams, 2007).

Other studies have investigated the prevalence of resilience in one domain of functioning following exposure to multiple forms of childhood maltreatment, such as research focused on resilience in the domain of mental health. In one large, cross-sectional study of a representative Canadian sample of adolescents and adults, resilience was defined by multiple indicators of mental health, including mental well-being, past-year diagnosis of psychiatric illness, and suicidal ideation (Afifi et al., 2008). This study focused on three types of childhood maltreatment: physical abuse, sexual abuse, and witnessing domestic violence. Similar to Flores et al. (2005), the majority of participants with a history of adversity were resilient and had good mental health (56%). Again, the rate of resilience (i.e., good mental health) was lower in the maltreated sample compared

to those with no history of maltreatment (72%). Additionally, there was a dose-response relation between exposure to maltreatment and resilience, as the percentage of participants classified as having good mental health dropped based on the number of types of maltreatment experienced (no maltreatment, 80%; one type, 71%; two types, 67%; all three types of maltreatment assessed, 56%).

Some research has assessed multiple forms of adversity and/or multiple dimensions of resilience in adults. One study found that, among adult participants with histories of childhood adversity, the majority displayed resilient outcomes across a variety of domains of life functioning, including sexual behavior (i.e., unintended teenage pregnancy, early sexual initiation), substance use (i.e., smoking, binge drinking, cannabis use, heroin or crack cocaine use), conduct (i.e., violence victimization, violence perpetration, incarceration), and diet and exercise (i.e., poor diet, low physical exercise; Bellis et al., 2014). Even among participants with exposure to four or more types of childhood adversity, the majority (over 50%) were resilient in each domain of functioning (Bellis et al., 2014). Another study also looked at childhood adversity and domains of functioning, including health conditions (i.e., depression, headache or migraine, lower back pain, obesity, high blood pressure, diabetes, asthma), health behaviors (i.e., smoking, binge drinking, binge eating, inactivity, low nighttime sleep), and health-related quality of life indicators (i.e., health status, days physically unhealthy in the past month, days mentally unhealthy in the past month, absences due to illness in the past year) and found that the majority of people who had experienced childhood adversity were resilient in these domains (Whitaker et al., 2014). Similar to Bellis et al. (2014), among those who had experienced the most childhood adversity (i.e., three or

more experiences of childhood adversity), the majority were resilient in every domain of life functioning, except for lower back pain (Whitaker et al., 2014). However, both of these studies used cross-sectional data and focused primarily on domains related to health outcomes.

In the one located longitudinal study, data were collected among economically-disadvantaged adults in Chicago who completed measures assessing multiple domains of functioning, including educational outcomes (i.e., graduating high school, college attendance), conduct (i.e., incarceration lasting longer than 30 days), income, and mental health (i.e., substance abuse, depressive symptoms, future expectations) (Topitzes et al., 2013). Resilience was defined as positive outcomes in five of the seven domains. Participants' history of maltreatment was drawn from verified reports of maltreatment from courts or child protective services. Few participants (21%) with a history of maltreatment met this definition of resilience. Using an even more stringent criterion for resilience (positive outcomes in six of the seven domains), 5% of the maltreated sample and 18% of the non-maltreated sample were considered resilient. However, several considerations suggest that the prevalence of resilience in this sample was markedly lower than in the general population. First, most of the adults in the sample did not meet the criteria for resilience, with only 46% of those without a verified history of maltreatment meeting this definition. Additionally, the assessment of childhood maltreatment through verified reports captured the most extreme forms of maltreatment. This study did provide evidence, however, that even among the extreme levels of maltreatment in particularly disadvantaged communities, some people still do display resilience.

College students. Researchers have conducted studies investigating the prevalence of resilience following childhood adversity in college student samples as well. Similar to research on other populations, these studies often focus on a specific type of maltreatment (e.g., childhood sexual abuse) or limit the definition of resilience to one domain (e.g., mental health).

One study of first-year female college students with (and without) a history of sexual abuse assessed resilience in terms of multiple domains of psychological adjustment (Himelein & McElrath, 1996). There were no differences between students with and without a history of childhood sexual abuse on the composite psychological adjustment variable, providing evidence that the students who had experienced sexual abuse were resilient.

Other studies have used broader measures of childhood maltreatment, yet focused on a single domain of life functioning to assess resilience. In one sample of college students, maltreatment was defined as physical, emotional, and sexual abuse and physical and emotional neglect, and resilience was operationalized as adjustment to college using the College Adjustment Questionnaire. The majority (73%) of college students with a history of maltreatment were adjusting well to college, which was defined as falling no more than one standard deviation below the mean of non-maltreated peers (Maples et al., 2014). However, as with previous studies, this percentage was lower than the percentage of students without a history of maltreatment (85%). This study also assessed moderators of the relation between maltreatment and college adjustment and found that social and emotional resources (e.g., intelligence, positive caregiving, self-esteem) moderated this relation for men, but not women (Maples et al., 2014).

Past research has highlighted that using a single domain of life functioning to measure resilience does not adequately describe people's functioning (Walsh et al., 2010). In one college student sample, students with a history of abuse showed poorer sleep, despite displaying comparable functioning in mental health as students without a history of abuse (Chambers & Belicki, 1998). This provided evidence that people with a history of maltreatment may be functioning well in one domain, but not in others, highlighting the necessity of defining resilience as multidimensional life functioning.

In a prior study, I examined the relations between childhood adversity and both good and poor life functioning in Minnesota college students using secondary data analysis of two large epidemiological datasets (Merians et al., under review). In this study, the majority (95-96%) of students with exposure to high levels of childhood adversity (i.e., 3 or more ACEs) were resilient in at least one of three domains of functioning assessed (mental health, GPA, and alcohol consequences). Additionally, when looking at each domain, the majority of students with high levels of childhood adversity were resilient in each domain and approximately a third were resilient in all three, though the percentages were lower compared to students without a history of childhood adversity. This study also drew on the Resilience Portfolio Model (Grych et al., 2015) to assess potential moderators of the relation between childhood adversity and life functioning. This model organized attributes that promote resilience into three domains (e.g., interpersonal strengths, regulatory strengths, and meaning-making; Hamby et al., 2018). Though the secondary data analysis limited the choice of potential moderators, social support and coping self-efficacy were assessed. Social support was not a significant moderator; however, coping self-efficacy moderated the relation between

childhood adversity and mental health such that higher coping self-efficacy reduced the association between childhood adversity and poor mental health (Merians et al., under review).

Limitations of Past Research in College Students

Past research provides evidence that many college students are resilient and display adaptive outcomes after experiences of childhood maltreatment. However, there are important limitations to consider in the research on resilience in college student samples. First, within the literature using college student samples, many of the studies did not comprehensively assess either childhood maltreatment or resilience, instead often focusing on one specific type of abuse or one domain of life functioning. For example, Himelein and McElrath (1996) focused on female survivors of sexual abuse, whereas Maples et al. (2014) used a broader assessment of childhood maltreatment. However, both were limited in the assessment of outcomes, investigating only psychological adjustment and college adjustment, respectively. Furthermore, past reviews (e.g., Walsh et al., 2010) have highlighted the importance of assessing resilience as a multidimensional construct. Only Merians et al. (under review) included educational outcomes when assessing resilience in college students, which is a critical domain of functioning for this population.

Second, the research on resilience in college students is all cross-sectional. By studying students at one point in time only, change over time cannot be assessed. By collecting multiple data points, resilience can be investigated as positive adaptation over time, identifying students who may thrive or deteriorate over time when facing the stressors and challenges of college. Research that assesses whether students are able to

maintain good functioning in various domains over time would add to the existing knowledge about resilience.

Third, within the existing studies, some key questions are understudied, such as the prevalence and moderators of resilience. Only two studies have reported the prevalence rates of resilience in college samples (Maples et al., 2014; Merians et al., under review). Furthermore, only two studies were located that assessed moderators of the relations between childhood maltreatment and domains of life functioning. Maples et al. found that social and emotional resources moderated the relation between childhood maltreatment and college adjustment, but only for men. The other study (Merians et al., under review) found that coping self-efficacy buffered the relation between childhood adversity and mental health. Lastly, while I have highlighted limitations of the research on college student samples here, much of the research on resilience has been done using at-risk samples. Results from these samples may not generalize to college students. As a result, we lack a full understanding of resilience in college students.

Current Study

To address the limitations of past research, in this study, both childhood maltreatment and resilience were comprehensively assessed. Childhood maltreatment was assessed by a measure that included childhood physical, sexual, and emotional abuse and physical and emotional neglect. To comprehensively assess resilience, I drew upon past research (e.g., Masten et al., 1999) and the theory of emerging adulthood (Arnett et al., 2001, 2014; Syed, 2016) to develop a theoretical rationale for assessing multiple domains of functioning in college students. The latter theory describes identity development as the key task for people between the ages of 18 and 24, the age of many

college students. Within the emerging adulthood literature, three key domains of identity development have been highlighted: relationships, work, and autonomy (Arnett, 2000; Arnett et al., 2001). Another key variable for this age group is conduct, which has been assessed in research on resilience for all age groups, including delinquency in children and involvement in the legal system as an adult (Walsh et al., 2010). Lastly, research has also identified mental health as a key variable for this age group, as three-fourths of lifetime cases of psychiatric illness emerge by age 24 (Kessler et al., 2005), and mental health has often been included as a domain of resilience in children and adolescents who have experienced maltreatment (Walsh et al., 2010). These domains are consistent with the most common domains assessed in past research on resilience - behavioral (e.g., conduct), emotional (e.g., mental health), social (e.g., peer relationships), and academic (e.g., grades) functioning (Walsh et al., 2010).

Therefore, drawing upon domains that are highlighted by both theory and past research, this study assessed social relationships (e.g., developing and maintaining healthy connections), academics, autonomy, conduct, and mental health as the domains of resilience. Social relationships focus on developing and maintaining healthy connections with others. Work focuses on academics and career planning for college students. Worldview centers on developing independence and choosing one's own path. Conduct involves risky behaviors that have been found to peak in emerging adulthood, such as risky sexual behaviors, excessive substance use, and risky driving behavior (Tanner, 2015). Mental health assesses participants' symptoms of mental illness and their perceptions of their mental health. Second, this study was longitudinal to assess for change over time over the course of a semester. Data were collected at two time points,

once at the beginning of the semester and once at the end. Childhood maltreatment was assessed at time 1 and the domains of functioning were assessed at both time points. By collecting two waves of survey data, it was possible to assess change over time to identify students whose functioning either improved or got worse over the course of the semester. This enabled me to assess resilience as the ability to function well over time. Additionally, by collecting longitudinal data, it was possible to separate out method variance, as concurrent assessments between maltreatment and functioning may inflate the correlations among variables because of common method variance (Podsakoff et al., 2003). Therefore, longitudinal data collection allows for the reduction of common method variance and the assessment of temporal associations.

Finally, this study drew upon the Resilience Portfolio Model (Grych et al., 2015; Hamby et al., 2018) to have a theoretical and research basis in the selection of potential moderators of the relation between maltreatment and resilience. This built upon my past work Merians et al. (under review), which was limited by available data, and addresses the dearth of moderation research in the extant literature in college students. The three domains of the Resilience Portfolio Model (i.e., interpersonal strengths, regulatory strengths, and meaning-making) are processes that are separate from the domains of functioning used as outcomes. For example, regulatory strengths involves the cognitive, emotional, physiological, and behavioral processes in sustaining goal-driven behavior over the short- and long-term; interpersonal strengths are the processes that allow for the development and maintenance of close relationships; and meaning-making are the processes of finding meaning, growth, and understanding through difficult and traumatic experiences (Grych et al., 2015). In this study, all three domains (i.e., interpersonal

strengths, regulatory strengths, and meaning-making) were included, whereas in my past work, only two were able to be included. These three domains have been found to be associated with increased resilience (Grych et al., 2015; Hamby et al., 2018)) and were identified as potential protective factors in a recent review (Southwick & Charney, 2012).

Current stressors were also included as a potential moderator, drawing on diathesis-stress models, in which maltreatment sensitizes people such that current stressors act as a stronger risk factor for those who have experienced more maltreatment (Mc Elroy & Hevey, 2014). Past research has found that early childhood maltreatment produces a vulnerability which may generate difficulties in dealing with later stress, finding that recent stressors partially mediated the relation between childhood adversity and well-being, however the study did not test if stressors moderated the relation (Mc Elroy & Hevey, 2014). In addition, several studies have found that childhood maltreatment was associated with more stressors (Baker et al., 2020; Infurna et al., 2015; Karatekin, 2018b; Mc Elroy & Hevey, 2014).

Present Study

Hypothesis 1. Childhood maltreatment will be associated with poorer functioning at both time points consistent with prior research.

Hypothesis 2. Most students with a history of low or moderate/severe childhood maltreatment will be resilient. I expected that the majority (i.e., at least 50%) of college students with a history of any childhood maltreatment would meet criteria for classification as resilient, as determined by being above the 25th percentile of scores in the total sample on any of the five domains of functioning.. Given that resilience is showing adequate, rather than exceptional, functioning, the 25th percentile was selected

as the cutoff for determining "good enough" functioning, similar to criteria used in past research (Walsh et al., 2010). Additionally, I expected that at least 50% of college students with a history of childhood maltreatment would have functioning scores that stayed stable or improved over the course of the semester for the five domains.

Hypothesis 3. Despite the prevalence of resilience within the maltreated sample, the proportion of students without a history of childhood maltreatment who were above the 25th percentile of scores for the domains of functioning would be greater than the proportion of students with a history of moderate or severe childhood maltreatment who were above the 25th percentile of scores for the domains of functioning. I also hypothesized that more students without a history of childhood maltreatment would have scores on the functioning measures that stayed stable or increased in the adaptive direction over the course of the semester.

Hypothesis 4. Recent stressors will moderate the association between childhood maltreatment and functioning and act as a risk factor, such that there will be a stronger relation between stressors and poorer T2 functioning (i.e., less resilience) among students with higher maltreatment scores, controlling for Time 1 functioning.

Hypothesis 5. The relation between childhood maltreatment and functioning will be moderated by the three domains in the resilience portfolio model: self-regulation, interpersonal strengths, and meaning-making. I expected that greater endorsement of these strengths would buffer the relation between childhood maltreatment and outcomes, such that students with higher maltreatment and higher strengths would show more resilience than students with higher maltreatment and lower scores on the resilience portfolio domains.

Method

The protocol (e.g., hypotheses, recruitment, materials, procedure, data analysis plan) of the present study was pre-registered with the Center for Open Science and is available at https://osf.io/pf4m8. Any changes to the pre-registered protocol are stated. The university's institutional review board approved the study.

Participants

Sample. Participants (N = 312) were undergraduate students recruited through psychology courses at a large Midwestern university during the Fall 2019 semester, with 77% (n = 241) of participants completing the survey at both time points. Recruitment occurred online (e.g., via class listservs, online postings) and offline (e.g., in-class announcements). Participants received extra credit for participation and were told that they were being invited to participate in a research study about resilience in college students. Students who were interested in participating were directed to the first online survey, where they gave consent. All assessments were self-reported and administered via Qualtrics, and could be completed on either a web-based or mobile browser. There were no face-to-face components of this study.

Power calculations for the study were based on the moderation analyses, as these were the analyses that would require the greatest power to detect. There are several ways to calculate power for moderation analyses to ensure the ability to detect the estimated effect sizes. One method is to estimate power based on the expected R^2 increase associated with the interaction term. Assuming a small effect of f^2 given past research, setting alpha to .05, the power to .80, and testing one predictor, the interaction term, in a model with four predictors (i.e., the Time 1 outcome variable, childhood maltreatment,

the moderator, and the interaction) the sample size needed was 395[1]. Another method is to calculate the power needed to detect the estimated correlation between the variables and then quadruple it to determine the sample size needed to detect the interaction (Giner-Sorolla, 2018). Drawing on past research, the estimated correlations used were .18, .14, .30, and .23 for the correlations between childhood maltreatment and social relationships, work, mental health, and conduct, respectively. The necessary sample size to detect these correlations is 187, 311, 66, and 113, making the sample size needed to detect the interactions 748, 1244, 264, and 452. Based on these various estimates, I planned to recruit at least 300 participants and aimed to recruit 750 to maximize the likelihood of adequately powering the tests of all interaction effects. I recruited as many participants as I could in the recruitment period.

The majority of the sample identified as cisgender women (78%), followed by cisgender men (20%), with the remaining 2% of the sample identifyin as either transgender, gender nonconforming, nonbinary, or questioning. Overall, participants were an average age of 20.28 years old (*SD* = 2.47). Participants were evenly distributed through the first four years of college: 22% were in their first year of college, 26% in their second, 27% in their third, 22% in their fourth, while 3% were in their fifth or more year of undergraduate education. One participant was a nondegree seeking student. The majority of participants identified as White (70%), followed by Asian (25%), Black or African American (5%), Middle Eastern (1%), and Other (1%); less than 1% of students identified as either Native Hawaiian/Pacific Islander or Native American/Alaskan Native. Percentages did not sum to 100% because participants could select more than one race or

[1] Power analyses were calculated based on the preregistered analyses, in which each moderator was tested separately.

ethnicity. The majority of students identified as straight or heterosexual (82%), followed by bisexual (10%), gay/lesbian/homosexual (3%), questioning (3%), and asexual (1%). One participant reported their sexuality as “other”, two reported that they did not understand the question, and two preferred not to answer.

Study Design

Surveys were administered during the Fall 2019 semester, with the Time 1 survey open from October 14, 2019 until November 4, 2019 and the Time 2 survey open from December 2, 2019 until December 11, 2019. In the first survey, measures assessed the five domains of functioning (i.e., social relationships, academics, worldview, conduct, and mental health), the three resilience portfolio moderators (i.e., self-regulation, interpersonal strengths, and meaning-making), childhood maltreatment, and demographic information. Students who took the first survey received an email with a personalized link to the second survey at the end of the semester. The second survey assessed the five domains of functioning, the three moderators, and recent stressors.

College adjustment. The 14-item College Adjustment Questionnaire (CAQ; O’Donnell et al., 2018) was selected to measure social relationships, academics, and mental health through the subscales of relational functioning (e.g., “I am satisfied with my social relationships”), educational functioning (e.g., “I am meeting my academic goals”), and psychological functioning (e.g., “I feel that I am doing well emotionally since coming to college”), respectively. Participants rated each item on a five-point Likert scale, ranging from 1 (V*ery inaccurate*) to 5 (*Very accurate*), to describe their "current situation." This scale was scored as an average response to each subscale to minimize the loss of data due to missingness. Past research has confirmed a three-factor structure

consistent with the subscales in a college student sample; in addition, the subscales were positively correlated (*r*s between .65 and .69) with similar measures, providing evidence of convergent validity (O'Donnell et al., 2018). The alphas of the scores in the present sample were α = .89 and .90 for relational functioning, α = .89 and .91 for educational functioning, and α = .77 and .78 for psychological functioning at time one and time two, respectively.

Autonomy. Ryff's (1989) Scales of Psychological Well-Being's autonomy subscale was used to measure the worldview domain of functioning. The autonomy subscale has nine items (e.g., "I am not afraid to voice my opinions, even when they are in opposition to the opinions of most people."), rated on a scale from 1 (*Strongly disagree*) to 6 (*Strongly agree*), reflecting how the participant "feels currently." This scale was scored as an average response to each item. Past research has found that scores on the autonomy subscale were positively associated with positive functioning (e.g., positive affect, life satisfaction) and negatively associated with negative functioning (e.g., negative affect, depression), providing evidence of convergent validity in a community sample (Ryff, 1989; Ryff & Keyes, 1995). Scores on this subscale displayed internal consistencies in this sample of α = .80 and .78 at times one and two, respectively.

Drinking consequences. The Drinker Inventory of Consequences (DrINC) was selected to measure conduct (Crawford-Williams et al., 2016). The DrINC is a 30-item measure of negative consequences of drinking (e.g., "I have had a hangover after drinking," "I have broken things or damaged property while drinking or intoxicated"). The response scale was 0 (*Not applicable, I have never drunk alcohol*), 1 (*Never*), 2 (*Once or a few times*), 3 (*Once or twice a week*), and 4 (*Daily or almost daily*), assessed

over the past year. This scale was scored as a sum of the potential consequences, consistent with past research (Crawford-Williams et al., 2016). Internal consistency of scores in this sample was α = .92 at both times one and two.

Difficulty in emotion regulation. The Difficulty in Emotion Regulation Scale (DERS) was selected to measure the resilience portfolio domain of self-regulation (e.g., "I experience my emotions as overwhelming and out of control") (Gratz & Roemer, 2004). This 36-item scale uses a 5-point scale, ranging from 1 (*Almost never*) to 5 (*Almost always*), with the participant rating how the items currently apply to them. This scale was scored as a sum of the items, as it was developed, such that higher scores represented greater problems with emotion regulation (Gratz & Roemer, 2004). Past research has found that the DERS was positively associated with experiential avoidance and self-harm behaviors in college students (Gratz & Roemer, 2004). The internal consistency of scores in this sample was α = .94 at time one and α = .95 at time two.

Meaning in life. The Meaning in Life Questionnaire (MLQ)'s 5-item Presence subscale was used to assess the resilience portfolio domain of meaning-making (Steger et al., 2006). Items assess participants' feeling of purpose in life at the present moment (e.g., "I have a good sense of what makes my life meaningful") and are rated on a 1 (*Absolutely untrue*) to 7 (*Absolutely true*) scale. This scale was scored as a sum of the items, as it was reported in the scale development research (Steger et al., 2006). Past research using college samples has supported the factor structure of the scale and found evidence of convergent and discriminant validity of scores, displaying positive associations with life satisfaction and positive emotions, and negative associations with depression and

negative emotions (Steger et al., 2006). In this sample, alpha coefficients were α = .94 at time one and α = .95 at time two.

Perceived social support. The Multidimensional Scale of Perceived Social Support (MSPSS) was used to assess the resilience portfolio domain of interpersonal strengths (Zimet et al., 1988). The 12-item measure assesses three sources of social support, from family (e.g., "My family really tries to help me"), friends (e.g., "I have friends with whom I can share my joys and sorrows"), and significant others (e.g., "There is a special person who is around when I am in need"). Participants responded to items on a seven-point scale, ranging from 1 (*Very strongly disagree*) to 7 (*Very strongly agree*). Participants reported on how they felt growing up. This scale was scored as an average response to each item (Zimet et al., 1988). Past research with college students found evidence of the three-factor structure and construct validity, in which social support was negatively associated with depression and anxiety (Zimet et al., 1988). Total scale scores had αs of .93 at both time points.

Childhood maltreatment. The Childhood Trauma Questionnaire - Short Form (CTQ-SF) was selected to measure childhood maltreatment (Bernstein et al., 2003; Bernstein & Fink, 1998). The CTQ-SF is 28-item measure designed to assess childhood physical, emotional, and sexual abuse and childhood physical and emotional neglect, each assessed with five items. The measure also includes a three-item validity scale. Items were rated on a 1 *(Never true*) to 5 (*Very often true*) scale. Research on the reliability and validity of scores on this measure has been conducted in a wide range of samples and scores on the measure have been found to be reliable over time, internally consistent, and have a relatively stable five-factor structure in the samples studied

(Bernstein et al., 2003). In this sample, the CTQ displayed internal consistency as a total score (α = .77) and as subscales, emotional abuse, α = .86; physical abuse, α = .81; sexual abuse, α = .96; emotional neglect, α = .92; and physical neglect, α = .71. The CTQ-SF includes cut-off scores to identify those who have experienced varying levels of childhood maltreatment, based on both inpatient and outpatient samples. The cut scores varied by scale. For physical abuse, scores less than or equal to 7 are evidence of none or minimal abuse, greater than 7 and less than or equal to 9 as low abuse, and greater than 9 as moderate-to-severe abuse. For emotional abuse, scores less than or equal to 8 are evidence of none or minimal abuse, greater than 8 and less than or equal to 12 as low abuse, and greater than 12 as moderate-to-severe abuse. For sexual abuse, scores less than or equal to 5 are evidence of none or minimal abuse, greater than 5 and less than or equal to 7 as low abuse, and greater than 7 as moderate-to-severe abuse. For emotional neglect, scores less than or equal to 9 are evidence of none or minimal abuse, greater than 9 and less than or equal to 14 as low abuse, and greater than 14 as moderate-to-severe abuse. For physical neglect, scores less than or equal to 7 are evidence of none or minimal abuse, greater than 7 and less than or equal to 9 as low abuse, and greater than 9 as moderate-to-severe abuse.

Current stressors. To assess current stressors, the American College Health Association's National College Health Assessment IIc (Fall 2015–Spring 2019) (American College Health Association, 2019) measure of stressors over the past semester was used. This measure assesses 11 different categories of stressors, including "Death of a family member or friend, finances, and sleep difficulties" (see Appendix B). Participants responded whether or not a stressor had been "very traumatic or difficult to

handle" over the past semester. A total number of stressors endorsed was then computed for each participant.

Data Analysis Plan

To test the first hypothesis, bivariate correlations were computed between the five domains of functioning and childhood maltreatment at both time points using continuous measures. To account for family-wise error, the pre-registered significance level of $p <$ .005 was used. Prior to testing the second and third hypotheses, cutoffs were created to distinguish resilient responses (i.e., above the 25th percentile). An additional cutoff of scores above the 75th percentile was created to denote students who were excelling in a particular domain of functioning. This approach was consistent with past research on resilience following maltreatment in children and adolescents (Walsh et al., 2010). The cutoffs for the CTQ were used to assess no, low, and moderate-to-severe exposure to childhood maltreatment. Participants with any moderate-to-severe maltreatment score on any of the subscales were classified as having experienced moderate-to-severe abuse. Participants with a low maltreatment score on any of the subscales and no moderate-to-severe scores were classified as having low childhood maltreatment. All others were categorized as having no maltreatment. Although there is a loss of information when turning continuous measures into categorical ones, this approach was necessary for identifying participants with high exposure to childhood maltreatment who were resilient, as focusing solely on linear relationships will only reveal that maltreatment is associated with poorer functioning (Walsh et al., 2010). To test the second and third hypotheses, chi-squared tests were used to compare the proportions of students with varying levels of childhood maltreatment on the categories of the domains of functioning. Six chi-squared

tests were conducted at each time point, one for each of the five domains (i.e, social relationships, work, worldview, conduct, and mental health) and one exploratory analysis for the number of domains in which the criterion for resilience was met.

To test hypotheses two and three, difference scores (T1 to T2) for the five domains of functioning were calculated for each participant and participants were then classified as maintaining ($d < 0.20$) scores on each domain or changing ($d > |0.2|$), with worsening or improving determined by the measure. Effect sizes were calculated as within-subjects Cohen's *d*, with the following formula: $d = \frac{x_{T1} - x_{T2}}{\sqrt{s_{T1}^2 + s_{T2}^2 - 2r_{T1,T2}s_{T1}s_{T2}}}$.

An effect size of |.2| was selected because it is commonly used to indicate a small effect size as a rule of thumb (Cohen, 1977, 1992). Five chi-squared tests, one for each domain of functioning, were conducted between the three outcomes categories (i.e., maintaining, improving, worsening) and the three categories of childhood maltreatment.

To assess the fourth and fifth hypotheses, five hierarchical multiple regressions were run in which the five domains of functioning at the end of the semester (time 2) as continuous variables were regressed in three steps on the same domain at the beginning of the semester (step 1); childhood maltreatment, recent stressors (assessed at Time 2), and the Time 2 resilience portfolio model variables (i.e., self-regulation, interpersonal strengths, meaning-making) (step 2); and the interaction between childhood maltreatment and recent stressors, and each of the three resilience portfolio variables (step 3). The variables were all standardized first. This was a change from the registered analyses in which we proposed that the moderators would be tested in separate regressions. This change was made to reduce the number of analyses performed. To account for missing data, multiple imputation was performed for the regression, in which five imputed

datasets were generated. Analyses were performed in each dataset and the results of the repeated analyses were pooled. An alpha of $p < .05$ was used to ensure adequate power in the regressions.

Results

Preliminary Analyses

R version 3.6.2 was used for all data analyses. Following the guidelines set out by Meade and Craig (2012), individuals were removed from the final dataset if they were labelled a “careless responder” (i.e., if they gave an erroneous response to two of the three instructed response questions [e.g., “Select "Most of the time" to respond to this item”] in the Time two survey). Participants were also removed if they affirmatively stated that the researchers should not use their data because they answered carelessly. In total, 6 (2%) participants were removed from the sample for being a careless responder.

Individual responses were excluded according to data-based outlier criteria, and skewness and kurtosis were assessed following Kim (2013)’s guidelines for sample sizes greater than 300. Based on these criteria, none of the variables met the criteria for non-normality. Boxplots were used to detect outliers on the variables. If outliers were found using the interquartile range criterion, scores on the scale were winsorized, such that the most extreme 2.5% of the responses were rescored to the nearest non-outlier value. No more than 4% of scores on the following scales were winsorized: CAQ Educational Functioning at T1 and T2, Ryff's autonomy subscale at T1 and T2, DrINC at T2, DERS at T1 and T2, MLQ at T1 and T2, MSPSS at T1 and T2, and CTQ. Participants were not excluded based on any other criteria not listed above. Table 1 shows the means and standard deviations for all the variables in the study. Participants who dropped out did not

differ significantly on Time 1 scores of educational functioning, relational functioning, autonomy, drinking consequences, emotion regulation, meaning-making, or childhood maltreatment. However, participants who dropped out (M = 3.08, SD = 1.00), compared to participants who completed both surveys (M = 3.37, SD = .94), scored significantly lower on the CAQ psychological functioning subscale, $t(123.02) = 2.34$, $p = .02$, $d = .31$. Missing data were handled with listwise deletion for some analyses and multiple imputation was used for the regression analyses.

Exploratory analyses to investigate demographic differences in childhood maltreatment were conducted. Women (M = 1.63, SD = 2.27) and men (M = 1.77, SD = 2.33) did not differ in childhood maltreatment, $t(92) = -0.41$, $p = .68$. There was a significant difference between students of color (M = 2.33, SD = 2.62) and White (M = 1.42, SD = 2.09) students in the amount of childhood maltreatment experienced, $t(160) = 2.99$, $p = .003$. Looking at each racial category separately, there was a significant effect of race on childhood maltreatment at the $p<.05$ level for the six racial categories [$F(4, 274) = 4.20$, $p = .003$], with the only significant difference between White and Asian (M = 2.46, SD = 2.63) students based on a Tukey's HSD test. When looking at the means, there was no clear pattern, thus making it inappropriate to categorize all nonwhite students together to control for race.

Hypothesis 1. The first hypothesis, that childhood maltreatment would be associated with lower scores on the measures assessing the domains of functioning, was partially supported (see Table 2). Specifically, childhood maltreatment was associated with poorer relational functioning, poorer educational functioning, and poorer psychological functioning at Time 1 with small to moderate effect sizes (rs = .21 to .24).

Associations between childhood maltreatment and autonomy and drinking consequences were very small and not significant. None of the associations between childhood maltreatment and the five domains were significant at Time 2 using the pre-registered significance level of $p < .005$. The associations between childhood maltreatment and educational functioning, $r = -.18$, $p = .006$, and psychological functioning , $r = -.17$, $p = .009$ at time 2, approached this threshold. In exploratory analyses to assess if there was a difference between Time 1 and Time 2 for the correlations between the domains of functioning and childhood maltreatment, none were significantly different across time, using an *r*-to-*z* transformation analysis.

Hypothesis 2. It was also hypothesized that at least 50% of participants with a history of childhood maltreatment would meet criteria for resilience (scoring above the 25th percentile for a domain of functioning). For participants with low childhood maltreatment exposure, at both Time 1 and 2, this hypothesis was supported. For example, the prevalence rates of resilience at Time 1 ranged from 57% (educational functioning) to 74% (autonomy and relational functioning) (see Tables 3-6). For those with moderate-to-severe childhood maltreatment, this hypothesis was mostly supported at Time 1, with only those with moderate-to-severe childhood maltreatment not meeting the majority resilient threshold for educational functioning, as 49% who experienced moderate-to-severe childhood maltreatment were resilient in this domain. Prevalence rates for the other domains ranged from 54% for relational functioning to 82% for drinking consequences.

At Time 2, between 65% (relational functioning) and 71% (autonomy) of students with low levels of maltreatment were resilient (see Table 3-7). At Time 2, at least 50%

(range = 57% for educational functioning to 76% for drinking consequences) of participants with a history of moderate-to-severe childhood maltreatment scored above the 25th percentile for all domains of functioning (i.e., were resilient). See table 3-6. Finally, the majority of students with low maltreatment (75% at Time 1, 81% at Time 2) and moderate-to-severe maltreatment (68% at Time 1, 70% at Time 2), were resilient in the majority (3 or more) of the domains of functioning (see Table 7).

Additionally, it was expected that at least 50% of students with a history of maltreatment would have functioning scores that stayed stable or improved over the course of the semester for the five domains of functioning (see Tables 8-12). This aspect of the hypothesis was fully supported, as for all domains of functioning, at least 50% of participants with a history of childhood maltreatment were classified as staying stable or improving for each domain over the course of the semester. Between 60% (educational and relational functioning) and 77% (drinking consequences) of participants with low maltreatment displayed resilience; among those with moderate-to-severe maltreatment histories, 55% (educational functioning) to 74% (drinking consequences) displayed resilience (see Tables 8-12). However, for relational functioning (61.19%), educational functioning (55.23%), and psychological functioning (64.18%), the percentage of students with moderate-to-high childhood maltreatment who were classified into the resilient category was higher than the no maltreatment percentage (47.05%, 51.26%, 54.63%).

Hypothesis 3. There was partial support for the hypothesis that more college students without a history of childhood maltreatment would be resilient (scoring above the 25th percentile) than students with a history of maltreatment at Time 1 and Time 2

(see Tables 3-12). The percentage of students who were resilient on the domains of functioning significantly differed between amounts of exposure to childhood maltreatment for relational functioning, $\chi^2(4) = 25.44$, $p < .003$, and psychological functioning, $\chi^2(4) = 16.62$, $p < .003$ at Time 1 but not for educational functioning, autonomy, or drinking consequences at Time 1. The significance level was set to $p < .003$ to account for familywise error. For relational functioning at Time 1, this was driven by fewer than expected students with no maltreatment in the struggling category and more than expected students with moderate-to-severe maltreatment in the struggling category, as determined by the adjusted standardized residuals (see Figure 2). Adjusted standardized residuals indicate how much a particular cell's deviation from the expected value contributes to the overall chi-squared statistic. In the figures, cells in red indicate an actual count greater than expected, whereas blue indicates the actual value is less than the expected. Given the sample size, the magnitude of the values can be interpreted somewhat like z-scores, with values over 2 indicating difference from the expected count and values over three indicating a marked difference (Everitt & Skrondal, 2010).

For psychological functioning at Time 1, this was driven by more than expected students with no maltreatment in the thriving category and fewer than expected students with moderate-to-severe maltreatment in the thriving category, as indicated by the adjusted standardized residuals (see Figure 10). However, for almost all domains of functioning at Time 1, even if the chi-squared tests were not significant, more students with no childhood maltreatment history were resilient than students with a history of childhood maltreatment. The only exception at Time 1 was for drinking consequences for which fewer students with no childhood maltreatment were resilient (69.59%) compared

to students with a history of low or moderate-to-severe childhood maltreatment (71.02% and 82.36%, respectively), when looking at the percentages.

At Time 2, only for educational functioning were there significant differences in functioning between students with differing levels of exposure to childhood maltreatment, $\chi^2(4) = 16.44$, $p < .003$, such that more students with no childhood maltreatment were resilient compared to those with low or moderate-to-severe maltreatment. Looking at the adjusted standardized residuals, this was driven by more students with moderate-to-severe maltreatment in the struggling category and with no maltreatment in the thriving category than expected, as well as fewer than expected with no maltreatment in the struggling category (see Figure 4). Relational functioning, autonomy, psychological functioning, and drinking consequences were not significant at Time 2. At Time 2, both autonomy and drinking consequences displayed a pattern contrary to what was expected, with slightly fewer students with no childhood maltreatment (65.83%, 71.66% respectively) being resilient compared to students with a history of childhood maltreatment (69.69%, 75.75% respectively for moderate-to-severe; 70.84%, 68.75% respectively for low); however, neither chi-squared test was significant.

There also was limited support for the hypothesis that more students without a history of childhood maltreatment would have scores on the domains of functioning that stayed stable or improved over the course of the semester (see Tables 8-12). None of the chi-squared tests for any of the domains of functioning were significant. Additionally, the only domains of functioning to display the expected pattern were autonomy and drinking consequences, in which more students with no childhood maltreatment were stable or

improving (61.34% to 84.88%) than students with a history of moderate-to-severe childhood maltreatment (57.57% to 74.24%).

Hypothesis 4. Hypothesis 4 was that recent stressors would moderate the relation between childhood maltreatment and domains of functioning at Time 2. The average number of stressors in the sample was 2.97 (*SD* = 2.56) and stressors and childhood maltreatment were associated, $r = .23$, $p < .001$. The most common stressors were sleep difficulties (79%), academics (57%), personal appearance (48%), intimate relationships (43%), and finances (43%). The moderation hypothesis was unsupported (see Table 13 through 17 for the regression results).

None of the five interactions between childhood maltreatment and the number of recent stressors were significant. Recent stressors were significantly related to mental health, $b = -.27$, $p = .02$, such that students who reported more recent stressors reported poorer psychological functioning, in Step 3. Childhood maltreatment was not significantly related to any of the outcome variables in the regressions.

Hypothesis 5. There was no support for the fifth hypothesis that emotion regulation, meaning-making, and social support at Time 2 would buffer the association between childhood maltreatment and the domains of functioning at Time 2. None of the 15 interactions was significant. Emotion regulation was significantly related to autonomy, $b = -.17$, $p = .03$; however, none of the other resilience portfolio variables were significantly related to the domains of functioning in any other model (see Tables 13-17). More emotional dysregulation was related to lower autonomy scores, after adjusting for Time 1 autonomy scores.

Discussion

This study addressed some of the limitations of past research by comprehensively assessing both childhood maltreatment and theoretically-relevant domains of functioning and including potential moderators of the relations between maltreatment and these domains, while also focusing specifically on college students. This discussion will include analysis of support of the hypotheses and an interpretation of the findings, connecting the results to the extant literature, an analysis of the generalizability and limitations of the results, implications, and future directions.

The hypothesis that childhood maltreatment would be associated with lower scores on the domains of functioning was partially supported, as childhood maltreatment was associated with poorer relational and educational functioning and poorer mental health, but only at Time 1. The relation between childhood maltreatment and psychological functioning (r = -.22) at Time 1 was similar in magnitude to past research, such as the association between childhood adversity and negative affect (r = .22; Khrapatina & Berman, 2017) or days with poor mental health (r = .26; Merians et al., under review). Relational functioning was found to follow a similar pattern to past research in children and adolescents, in which most who experienced maltreatment were resilient in this domain (Walsh et al., 2010).

The association between childhood maltreatment and educational functioning (r = -.21) at Time 1 was stronger than the association between childhood adversity and GPA in a prior study (r = -.08; Merians et al., under review). This could be because the measure of educational functioning used here also included an emotional component (e.g., "I am happy with the grades I am earning in my classes"). Previous literature has

been mixed on the relation between childhood maltreatment and educational outcomes; this study adds support to past research that found that greater exposure to childhood maltreatment was associated with poorer educational outcomes (Duncan, 2000; Merians et al., 2019).

Unlike past research, childhood maltreatment was not associated with drinking consequences or autonomy. Past research has found that the accumulation of childhood adversity was consistently associated with substance use, including alcohol use (Forster et al., 2018; Kalmakis & Chandler, 2015; Windle et al., 2018). However, this research has used measures of alcohol consumption, whereas the present study focused on the consequences of alcohol use. Merians et al. (under review) also assessed alcohol consequences, however, the pattern of functioning was such that students with more childhood adversity drank more, whereas in this study, those with moderate-to-severe maltreatment had the fewest alcohol consequences. Childhood maltreatment may be associated with increased substance use, though college students may be sheltered from the consequences of their use. The consequences span a wide variety of outcomes, such that people may experience them drinking alone or with others. Lastly, despite autonomy being hypothesized to be a key developmental task for college students (Arnett et al., 2001), it did not appear to be an area that was salient in this study in terms of its relations with maltreatment and it has not been assessed in prior research.

Overall, the cross-sectional correlations at Time 1 were the most similar to past research in terms of patterns of significance. The relations between childhood maltreatment and the domains of functioning tended to weaken when comparing the correlations at Time 1 and Time 2, including for educational functioning, psychological

functioning, and relational functioning. However, the magnitude of the correlations was relatively similar and the nonsignificance could reflect the reduced power due to attrition at Time 2. However, given that none of the correlations at Time 2 were statistically significant, the results provide some evidence that cross-sectional correlations may overestimate the associations between childhood maltreatment and current functioning due to shared method variance (Podsakoff et al., 2003). The longitudinal time frame, even when as short as the month between waves of data collection here, reduced the shared variance by eliminating shared temporal variance. Given that the majority of past research on college students has relied on cross-sectional methods, it is important to recognize the potential for inflated correlations.

Another important consideration when comparing the associations in this study to past research is the difference between the constructs of childhood maltreatment and childhood adversity. Measures of childhood adversity, such as the Adverse Childhood Experiences Questionnaire (Felitti et al., 1998), include household dysfunction, such as parental divorce, parental mental illness, and parental substance abuse, which are relatively common experiences. Past research has found that the most common childhood adversities experienced are emotional abuse, household substance use, household mental illness, and parental separation or divorce (Merians et al., 2019; Windle et al., 2018). Given that the majority of the most common experiences are present in measures for adversity, but not maltreatment, studies using measures of childhood adversity have higher cumulative scores compared to childhood maltreatment measures, which specifically focuses on abuse and neglect in childhood.

The hypothesis that the majority of participants with a history of childhood maltreatment would meet the criteria for resilience on the domains of functioning was supported. Among participants with low levels of childhood maltreatment, this hypothesis was supported for all domains of functioning (i.e., relational functioning, educational functioning, autonomy, drinking consequences, mental health) at both Times 1 and 2. For those with moderate-to-severe childhood maltreatment, only for educational functioning at Time 1 was this not supported, with 51% of those participants categorized as not resilient. In looking at the stability of functioning scores across time points, this hypothesis was supported across all domains of functioning, such that the majority of students with histories of maltreatment were stable or improving from Time 1 to Time 2. Participants appeared to be more likely to display resilience for drinking consequences, and less likely to display resilience for relational, educational, and psychological functioning. When looking at individual domains of resilience, prevalence rates in the present study were somewhat lower than in past research (Merians et al., under review). For example, the percent of students with high ACEs who were resilient in the mental health domain in a previous college student sample was about 63%, compared to about 54% in the present study.

The prevalence of resilience across domains in this study was comparable to resilience rates in past research in college student samples. The majority of students with low (75-80%) and moderate-to-severe (68-70%) maltreatment were resilient in the majority (3 of the 5) of the domains of functioning. These rates were similar to Maples et al. (2014), in which 73% of participants with maltreatment histories displayed resilience on a composite adjustment score, and Merians et al. (under review), in which 74% of

students with high levels of childhood adversity (3 or more ACEs) were resilient in the majority (2 of 3) of domains assessed.

Looking beyond research on resilience in college students, the findings in this study mostly replicate existing research. A past review of studies on resilience in children and adolescents found that most people are resilient across multiple domains of functioning (Walsh et al., 2010). Additionally, studies on specific domains of functioning have found that the majority of participants with childhood maltreatment were resilient in the domains studied, such as psychological (Afifi et al., 2008; Ronan et al., 2009) or social functioning (Flores et al., 2005). The current study's findings are also in line with research that focuses on a particular type of maltreatment, such as childhood sexual abuse (e.g., Banyard & Williams, 2007), in that the majority of students were resilient in most domains of functioning, despite the broader assessment of childhood maltreatment to include childhood physical, emotional, and sexual abuse and physical and emotional neglect.

The hypothesis that more college students *without* a history of childhood maltreatment would be performing well in the domains of functioning compared to students *with* a history of childhood maltreatment was partially supported. The only times this hypothesis was not supported was with drinking consequences at Times 1 and 2 and autonomy at Time 2. For example, in the domain of relational functioning at T1, about 83% of students with no maltreatment were “resilient” compared to 54% of students with moderate-to-severe maltreatment. However, when looking at the stability of functioning scores across time points, this hypothesis was supported only for autonomy and drinking consequences, whereas for the other domains, more students with a history of adversity

were resilient compared to those without. Given that the cross-sectional hypotheses were not supported for these domains of functioning, yet the longitudinal hypotheses were, these domains seem important to investigate as part of a dynamic understanding of resilience that looks at functioning across time.

In regression analyses, experiencing more recent stressors was associated with lower psychological functioning, controlling for many other factors, including prior functioning. In fact, proximal stressors were more associated with mental health than was child maltreatment. This finding is of particular importance for those designing interventions to support college students, as it suggests that interventions to reduce stressors could also lead to improvement in students' mental health. Given that the most frequently endorsed stressors were sleep difficulties, academics, personal appearance, intimate relationships, and finances, interventions to target these stressors could improve student mental health. A recent systematic review of sleep interventions for college students indicated that cognitive behavioral sleep interventions were most effective (Friedrich & Schlarb, 2018). Additionally, reducing tuition and forgiving student loan debt is a potential intervention.

Similarly, the hypothesis that emotion regulation, meaning-making, and social support would moderate the association between childhood maltreatment and domains of functioning was unsupported. While some studies have found social support has moderated the association between childhood adversity and domains of functioning, other studies have failed to find consistent significant moderation. For example, social support moderated one out of five associations between childhood maltreatment and domains of functioning, there is some consistency to the finding as well (Merians et al., under

review). However, the regressions to detect moderation were underpowered and the regression coefficients were negligible, indicating that even with a larger sample size, they were unlikely to be significant. Nonetheless, the Resilience Portfolio protective factor of emotion regulation showed an association with better functioning, indicating that it may still be an important target for intervention, as past research has found (Grych et al., 2015).

Although not all the analyses displayed statistical significance, further understanding of resilience after childhood maltreatment can be derived from nonsignificant findings. Consistent with the hypothesis that childhood maltreatment would be associated with poorer functioning, students who had experienced more childhood maltreatment reported poorer educational functioning and mental health at both time points. This provides evidence that these domains of functioning are important targets for intervention to help support college students with histories of childhood maltreatment. This might include campus-wide interventions to improve mental health, identifying students with histories of maltreatment and providing referrals to counseling and educational supports, and rethinking curricula to be more accessible to students with mental health challenges or a history of maltreatment.

On the other hand, the lack of significant associations between childhood maltreatment and autonomy and drinking consequences in the correlations and chi squared analyses provide potential evidence of resilience, as students with and without histories of childhood maltreatment are not statistically distinguishable on these domains of functioning. This allows us to know where to direct resources and develop interventions, indicating that focusing on mental health and educational outcomes may

yield the greatest improvement for these students. These findings also draw attention to potential "hidden talents" of students who have experienced childhood maltreatment, which may have allowed them to display resilience in these areas due to the hardships of their past (Ellis et al., 2020). Overall, in accordance with past research, the results show that, while people are impacted by childhood maltreatment, college students also display tremendous resilience in the face of adversity.

However, this study has limitations that temper the conclusions that can be drawn. One set of limitations involves study design and measurement. Given that recruitment involved extra credit for a class, the time between the waves of data collection was approximately one month. It is possible that, with a greater period of time between the two waves, more distinct patterns would have emerged. Additionally, given that data were only collected at two time points, more complex longitudinal analyses were not possible. Childhood maltreatment was measured using the CTQ, a retrospective self-report measure, which may have overestimated the relations between childhood maltreatment and outcomes, even though the correlations were low (Reuben et al., 2016). Some measures of childhood adversity broaden the construct to beyond the home and family, including bullying, financial insecurity, and unsafe neighborhoods (Morrill et al., 2019). In this study, the focus was specifically on experiences of childhood abuse and neglect, which is another limitation. Additionally, the measures selected for the domains of functioning and moderators may not have been sensitive to the changes over the relatively limited time frame and thus underestimated change in those variables.

Another limitation is the sample-dependent cut-offs for the domains of functioning. By assessing the domains of functioning this way, the divisions are specific

to this sample and thus may not generalize across samples. However, this method was deemed necessary to determine which students would be classified as resilient. This method has been used in past studies to determine resilience when using measures that do not have clearly established cut-offs (Walsh et al., 2010). Additionally, the cutoff of d = |.20| as the determinant of change in the longitudinal analyses was arbitrary and based on a rule of thumb. Future research may want to use measures with empirically derived criteria for resilience and use the Reliable Change Index (Jacobson et al., 1984) to quantify change over time.

Other limitations of the study concern the generalizability of the findings. As discussed earlier, results from at-risk samples may not generalize to college students; likewise, results from college student samples may not generalize to the general population. It is possible that college students with moderate-to-severe experiences of childhood maltreatment are more resilient than other young adults with similar experiences, given that those who have experienced maltreatment are less likely to attend college (Mersky & Topitzes, 2010). Additionally, this sample only included college students from a single four-year institution, so the results may not generalize to students at two-year colleges or less-selective four-year institutions. Furthermore, a more targeted approach for recruiting students of color to participate in such research to allow for analysis by race would add to the literature.

However, this study indicates several avenues of future research. A longer-term longitudinal study with more time points could be useful to understand resilience in college students. For example, a study that tracks students over the course of their four years, collecting data at the beginning and end of each semester, would allow researchers

to continue to study the dynamic processes of resilience. Research conducted using a shorter and more intensive design, such as ecological momentary assessment, would allow investigators to assess how people handle daily stressors (see Baker et al., 2020). This would allow for the study of spillover effects and recovery lags, which may be flattened in studies with a longer time between waves.

Furthermore, research could investigate the differences between measures of childhood adversity compared to childhood maltreatment. Given that the most commonly endorsed experiences in measures of adversity are not abuse and neglect, future research could work to identify if this could lead to stronger correlations between childhood adversity and functioning, compared to childhood maltreatment and functioning. Conversely, it may be argued that maltreatment measures underestimate the prevalence of adversity. Studies could potentially assess both to fully understand how childhood experiences shape functioning later in life.

Additionally, continued research on the five domains of functioning included here would help assess if these are the most critical domains to study for understanding resilience in college students. Studies could also use measures for the domains of functioning that have been developed with cut-points, much like the CTQ was developed to have cut-points for levels of childhood maltreatment. This would address the limitation of sample-specific determinants of resilience. Data-driven analyses, such as cluster analysis or latent profile analysis, could also be used to identify resilient students. The inclusion of additional moderators from the Resilience Portfolio model would also build upon this work.

While resilience in college students is still a nascent focus of research, this study does provide some suggestions for practice. Clinicians who work with college students with histories of childhood maltreatment may use these findings to help college students recognize their capabilities for resilience, in addition to helping students develop in areas where they are struggling. The results indicate it is very likely that students are doing well in at least one area of life, even for those exposed to moderate-to-severe adversity. While they may be focusing on areas in which they are struggling, clinicians can utilize a strengths-based approach to highlight areas of success to help empower clients to make positive adaptation in other areas of their lives. The results also provide some evidence that academics and mental health are areas that may be a particular struggle for students with a history of childhood maltreatment. However, giving clients space to recognize that, despite struggles in some areas, such as academics and mental health, they are doing well in other areas and have developed unique strengths due to their experience helps combat the deficit approach that dominates the field (Ellis et al., 2020). It is important to build a narrative in research and practice that acknowledges the resilience of these students without minimizing the struggles they have endured.

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Table 1. Means and standard deviations of study variables

	Time 1		Time 2	
	Mean	Standard deviation	Mean	Standard deviation
Childhood maltreatment	1.71	2.34	---	---
Educational functioning	3.81	0.96	3.94	0.76
Relational functioning	3.34	1.01	3.34	1.00
Psychological functioning	3.34	0.96	3.40	0.94
Autonomy	4.01	0.71	3.99	0.65
Consequences of alcohol use	8.15	6.87	6.92	6.49
Emotion regulation	80.09	21.76	78.76	20.93
Meaning-making	24.96	6.87	24.92	6.53
Social support	5.52	1.13	5.59	1.03
Stressors	---	---	2.97	2.56

Note. n = 312 at Time 1, n = 241 at Time 2

Table 2. Correlations among study variables

		1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.
1.	Childhood maltreatment	---																
2.	Educational functioning, T1	-.21*	---															
3.	Educational functioning, T2	-.18	.46*	---														
4.	Psychological functioning, T1	-.22*	.43*	.12	---													
5.	Psychological functioning, T2	-.17	.20*	.37*	.56*	---												
6.	Relational functioning, T1	-.24*	.15	.15	.43*	.34*	----											
7.	Relational functioning, T2	-.11	.17	.23*	.30*	.54*	.58*	----										
8.	Autonomy, T1	-.02	.08	.00	.19*	.08	.16*	.08	---									
9.	Autonomy, T2	.06	.01	.10	.04	.18	.11	.14	.59*	---								
10.	Consequences of alcohol use, T1	-.04	.02	.07	-.20*	-.05	.14	.10	-.09	.04	---							
11.	Consequences of alcohol use, T2	.04	.01	.02	-.04	-.03	.17	.19*	.01	-.03	.71*	---						
12.	Emotion regulation, T1	.19*	-.25*	.01	-.55*	-.31*	-.33*	-.18	-.40*	-.24*	.19*	.12	---					
13.	Emotional regulation, T2	.12	-.13	-.17*	-.31*	-.51*	-.22*	-.38*	-.26*	-.37*	.07	.14	.57*	---				
14.	Meaning-making, T1	-.19*	.18*	.13	.33*	.30*	.32*	.25*	.21*	.10	-.08	.01	-.40*	-.34*	---			
15.	Meaning-making, T2	-.15	.17	.23*	.23*	.45*	.26*	.43*	.15	.21*	.02	-.04	-.21*	-.43*	.59*	---		
16.	Social support, T1	-.60*	.20*	.10	.26*	.22*	.35*	.15	.11	.06	.10	.07	-.29*	-.19*	.36*	.24*	---	
17.	Social support, T2	-.42*	.20*	.29*	.11	.29*	.28*	.38*	-.01	.06	.10	.06	-.09	-.34*	.36*	.42*	.58*	---
18.	Stressors	.23*	-.17	-.32*	-.35*	-.54*	-.14	-.20*	-.04	-.15	.11	.14	.29*	.42*	-.19*	-.21*	-.19*	-.21*

Note. * $p < .005$, $n = 312$ at Time 1, $n = 241$ at Time 2

None of the correlations were significantly different from Time 1 to Time 2.

Table 3. Relational functioning by childhood maltreatment
Relational functioning by childhood maltreatment, Time 1

	Relational Functioning			% Competent
Childhood Maltreatment (CTQ score)	Struggling (M = 1.99)	Average (M = 3.49)	Thriving (M = 4.51)	
None	25 (16.89%)	75 (50.68%)	48 (32.43%)	83.11%
Low	18 (26.09%)	36 (52.17%)	15 (21.74%)	73.91%
Moderate-to-severe	39 (45.88%)	33 (38.82%)	13 (15.29%)	54.11%

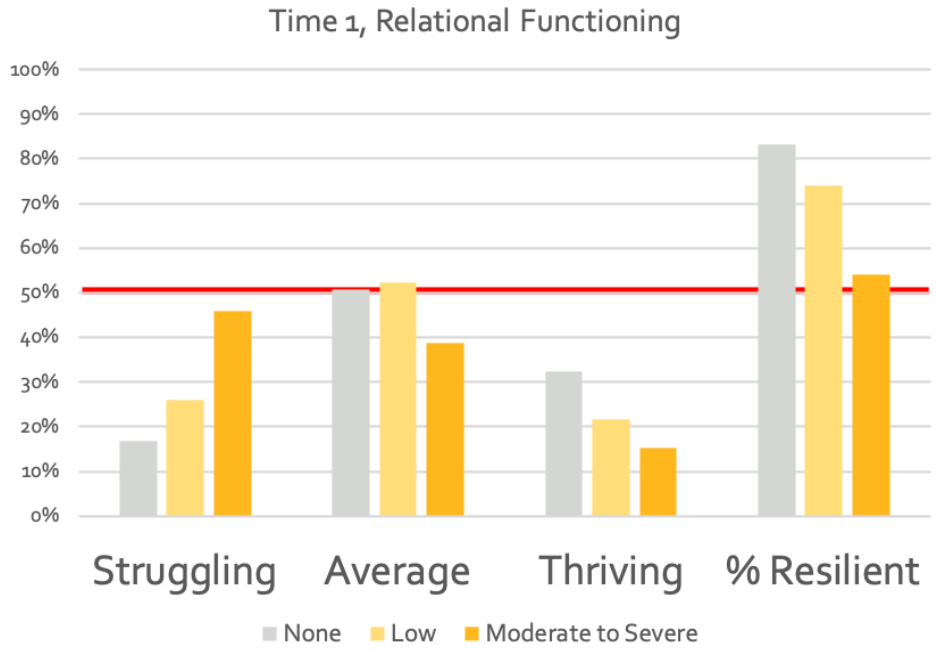
$\chi^2(4) = 25.44$, $p < .0001$, $n = 302$
Note. Percentages are row percentages.

Relational functioning by childhood maltreatment, Time 2

	Relational Functioning			% Competent
Childhood Maltreatment	Struggling (M = 2.07)	Average (M = 3.33)	Thriving (M = 4.34)	
None	31 (25.83%)	42 (35%)	47 (39.17%)	74.17%
Low	17 (35.42%)	12 (25%)	19 (39.58%)	64.58%
Moderate-to-severe	22 (32.84%)	23 (34.33%)	22 (32.84%)	67.17%

$\chi^2(4) = 2.9994$, $p = .56$, $n = 235$
Note. Percentages are within rows.
For all tables, for childhood maltreatment, participants in the low category endorsed any experience of low maltreatment and no experiences of moderate-to-severe maltreatment and participants in the moderate-to-severe category endorsed any experience of moderate-to-severe maltreatment.

Figure 1. Relational functioning by childhood maltreatment
Relational functioning by childhood maltreatment, Time 1



Relational functioning by childhood maltreatment, Time 2

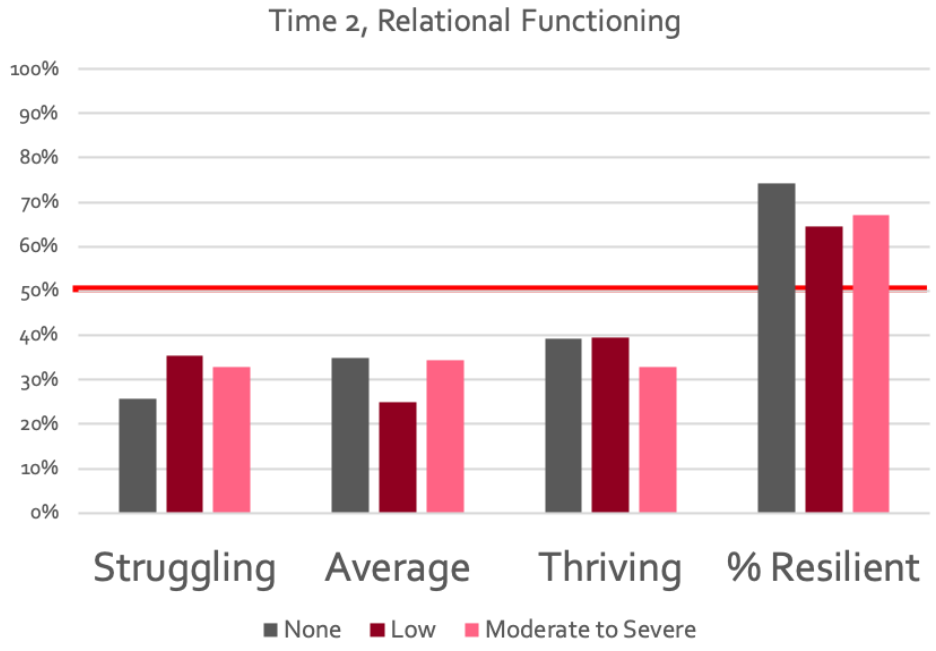
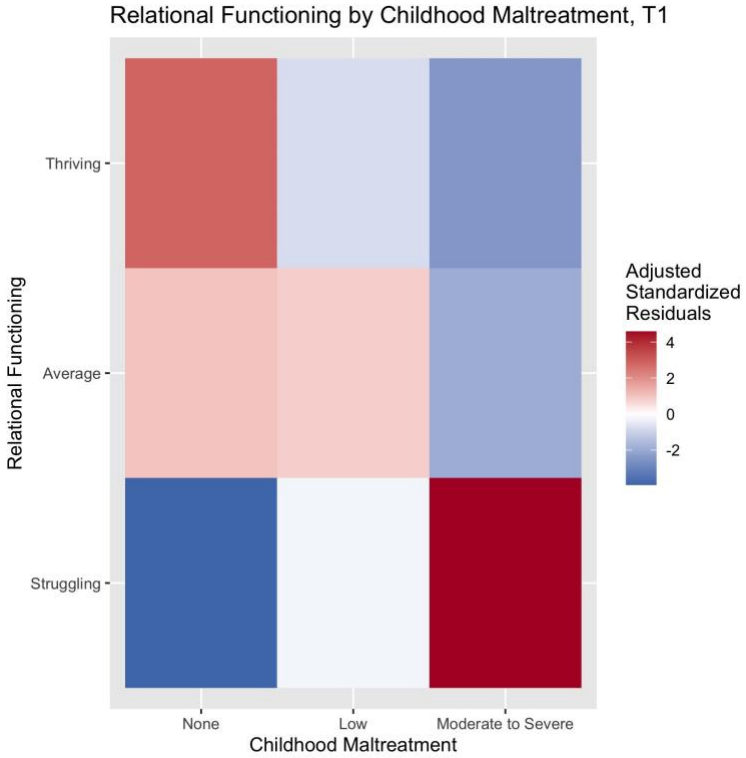


Figure 2. Adjusted standardized residuals for relational functioning

Adjusted standardized residuals for relational functioning by childhood maltreatment, Time 1



Adjusted standardized residuals for relational functioning by childhood maltreatment, Time 2

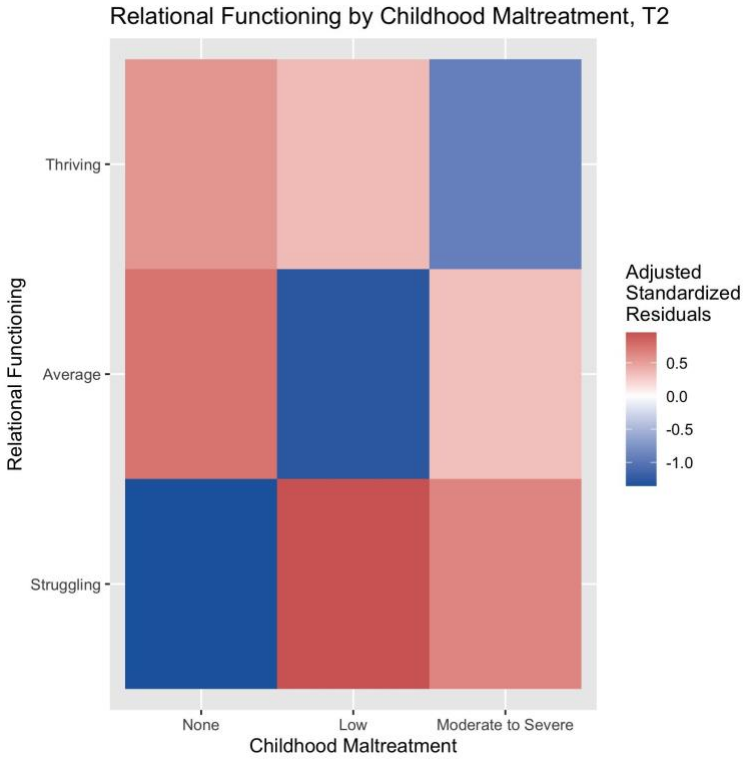


Table 4. Educational functioning by childhood maltreatment

Educational functioning by childhood maltreatment, Time 1

	Educational Functioning			% Competent
Childhood Maltreatment (CTQ score)	Struggling (*M* = 3.04)	Average (*M* = 4.02)	Thriving (*M* = 4.71)	
None	44 (29.73%)	56 (37.83%)	48 (32.43%)	70.26%
Low	30 (43.48%)	23 (33.33%)	16 (23.19%)	56.52%
Moderate-to-severe	43 (50.59%)	26 (30.59%)	16 (18.82%)	49.41%

$\chi^2(4) = 11.59$, $p = .02$, $n = 302$

Note. Percentages are within rows.

Educational functioning by childhood maltreatment, Time 2

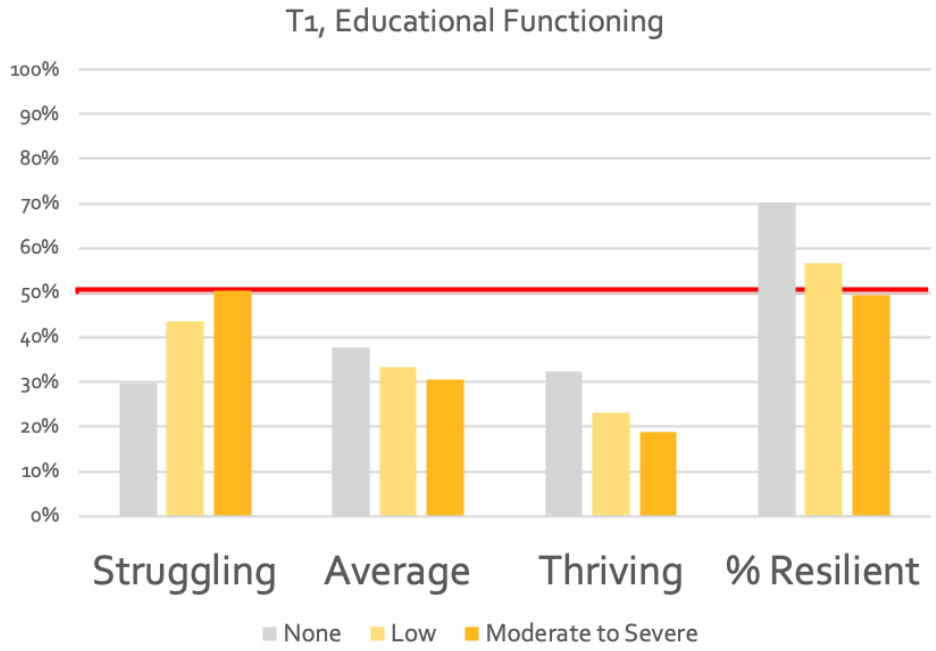
	Educational Functioning			% Competent
Childhood Maltreatment	Struggling (*M* = 2.98)	Average (*M* = 4.03)	Thriving (*M* = 4.73)	
None	22 (18.33%)	52 (43.33%)	46 (38.33%)	81.66%
Low	16 (33.33%)	21 (43.75%)	11 (22.92%)	66.67%
Moderate-to-severe	29 (43.28%)	25 (37.31%)	13 (19.40%)	56.71%

$\chi^2(4) = 16.44$, $p = .002$, $n = 235$

Note. Percentages are row percentages.

For all tables, for childhood maltreatment, participants in the low category endorsed any experience of low maltreatment and no experiences of moderate-to-severe maltreatment and participants in the moderate-to-severe category endorsed any experience of moderate-to-severe maltreatment.

Figure 3. Educational functioning by childhood maltreatment
Educational functioning by childhood maltreatment, Time 1



Educational functioning by childhood maltreatment, Time 2

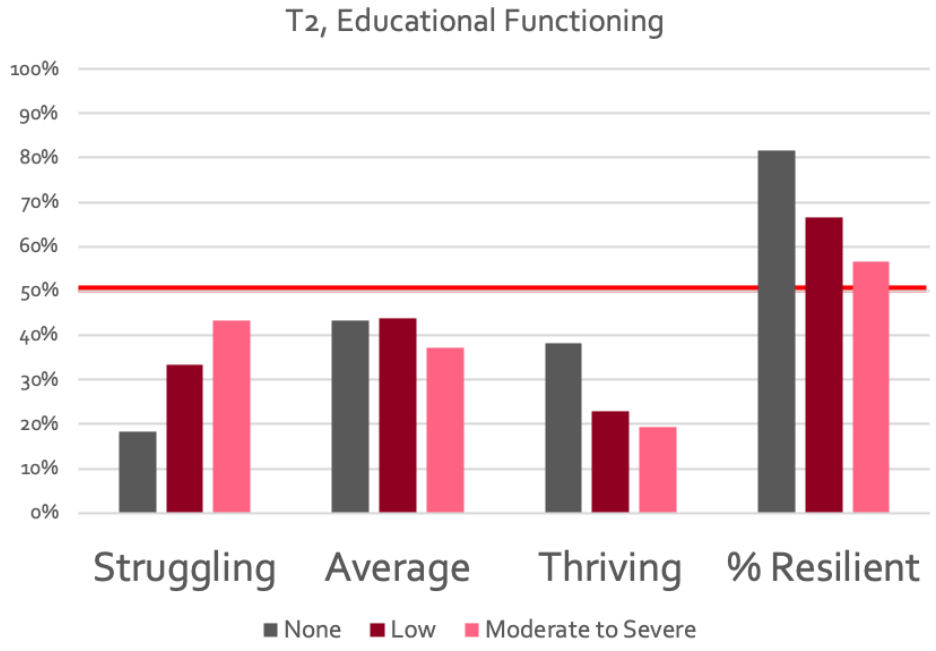
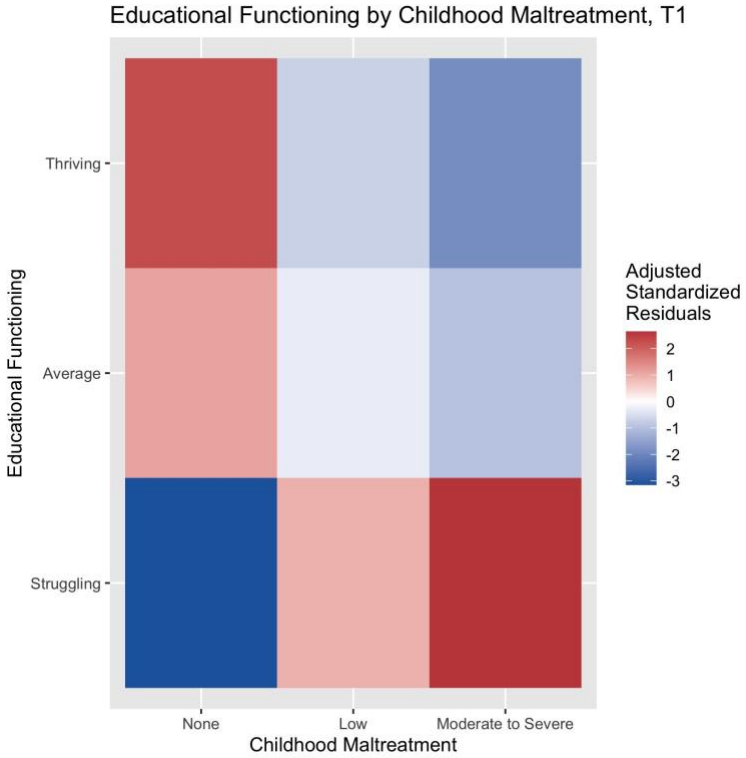


Figure 4. Adjusted standardized residuals for educational functioning

Adjusted standardized residuals for educational functioning by childhood maltreatment, Time 1



Adjusted standardized residuals for educational functioning by childhood maltreatment, Time 2

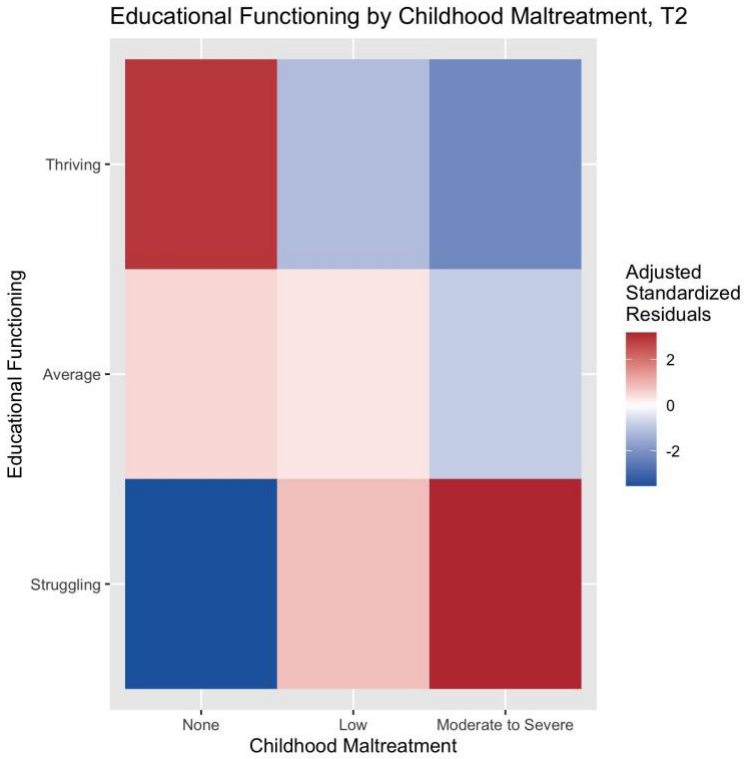


Table 5. Autonomy by childhood maltreatment

Autonomy by childhood maltreatment, Time 1

	Autonomy			% Competent
Childhood Maltreatment (CTQ score)	Struggling (*M* = 3.14)	Average (*M* = 3.98)	Thriving (*M* = 4.79)	
None	37 (25%)	64 (43.24%)	47 (31.76%)	75%
Low	18 (26.09%)	30 (43.48%)	21 (30.43%)	73.91%
Moderate-to-severe	23 (27.06%)	37 (43.53%)	25 (29.41%)	72.94%

$\chi^2(4) = 0.19$, $p = .9957$, $n = 302$

Note. Percentages are within rows.

Autonomy by childhood maltreatment, Time 2

	Autonomy			% Competent
Childhood Maltreatment	Struggling (*M* = 3.30)	Average (*M* = 4.01)	Thriving (*M* = 4.78)	
None	41 (31.17%)	49 (40.83%)	30 (25%)	65.83%
Low	14 (29.17%)	20 (41.67%)	14 (29.17%)	70.84%
Moderate-to-severe	20 (30.30%)	28 (42.42%)	18 (27.27%)	69.69%

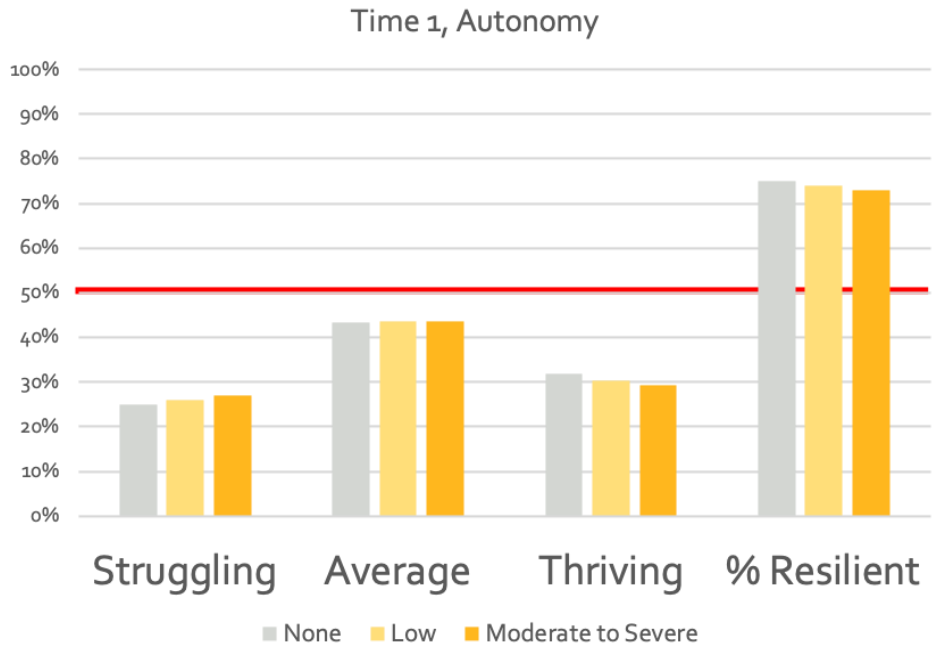
$\chi^2(4) = 0.63$, $p = .96$, $n = 234$

Note. Percentages are within rows.

For all tables, for childhood maltreatment, participants in the low category endorsed any experience of low maltreatment and no experiences of moderate-to-severe maltreatment and participants in the moderate-to-severe category endorsed any experience of moderate-to-severe maltreatment.

Figure 5. Autonomy by childhood maltreatment

Autonomy by childhood maltreatment, Time 1



Autonomy by childhood maltreatment, Time 2

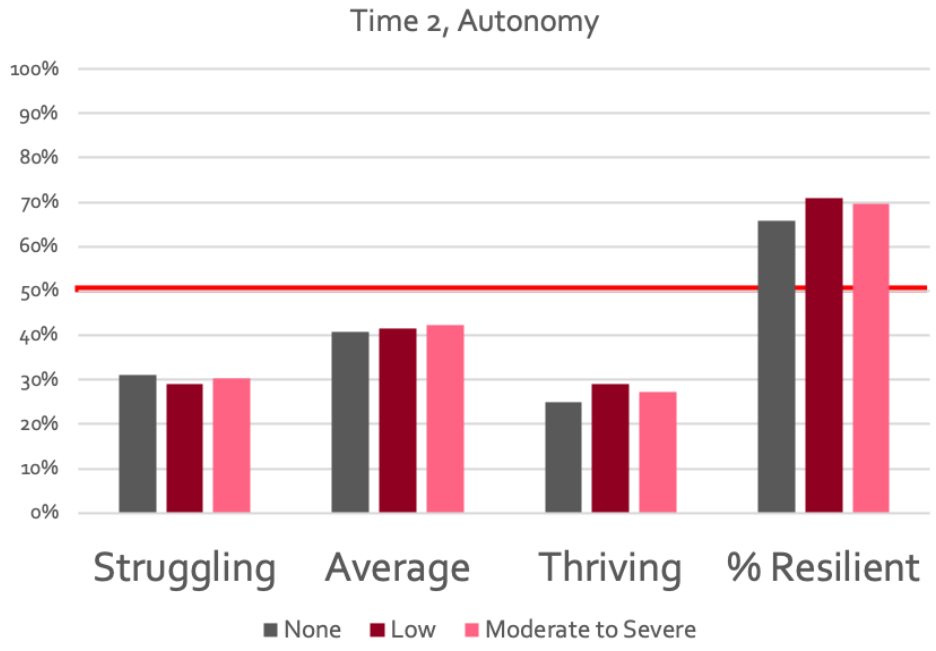
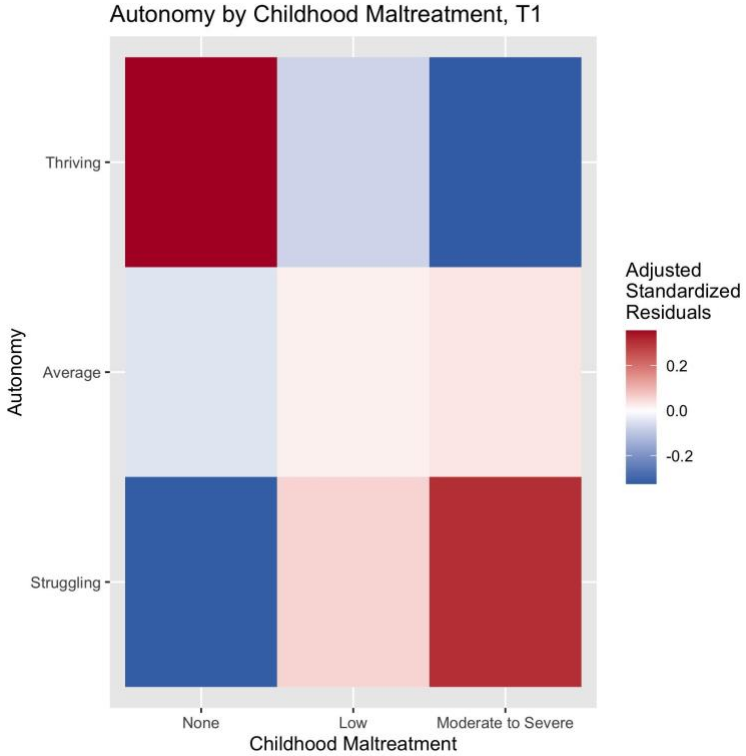


Figure 6. Adjusted standardized residuals for autonomy

Adjusted standardized residuals for autonomy by childhood maltreatment, Time 1



Adjusted standardized residuals for autonomy by childhood maltreatment, Time 2

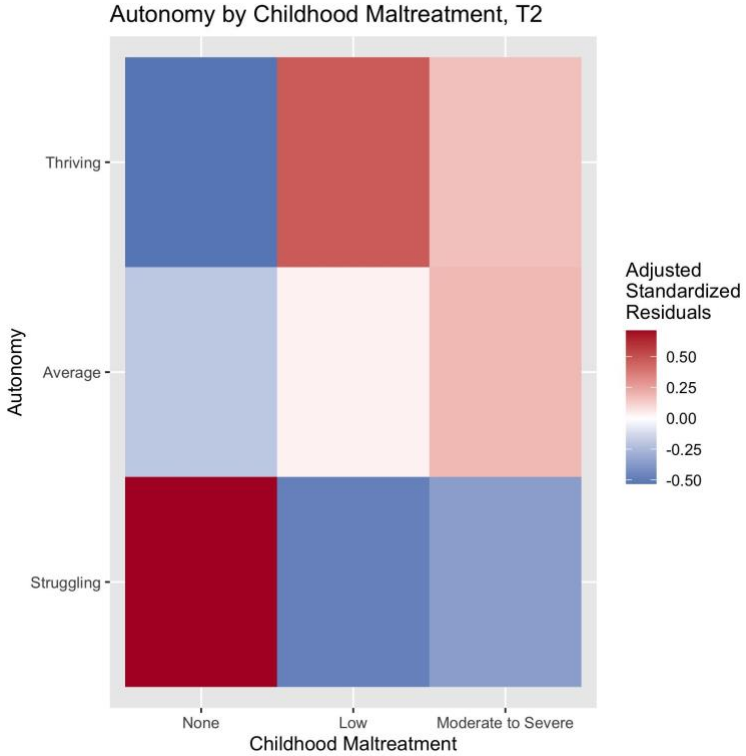


Table 6. Consequences of alcohol use by childhood maltreatment

Consequences of alcohol use by childhood maltreatment, Time 1

	Consequences of Alcohol Use			% Competent
Childhood Maltreatment (CTQ score)	Struggling (*M* = 17.5)	Average (*M* = 6.99)	Thriving (*M* = 1.34)	
None	45 (30.41%)	64 (43.24%)	39 (26.35%)	69.59%
Low	20 (28.99%)	30 (43.48%)	19 (27.54%)	71.02%
Moderate-to-severe	15 (17.65%)	41 (48.24%)	29 (34.12%)	82.36%

$\chi^2(4) = 5.04$, $p = .28$, $n = 302$

Note. Percentages are within rows.

Consequences of alcohol use by childhood maltreatment, Time 2

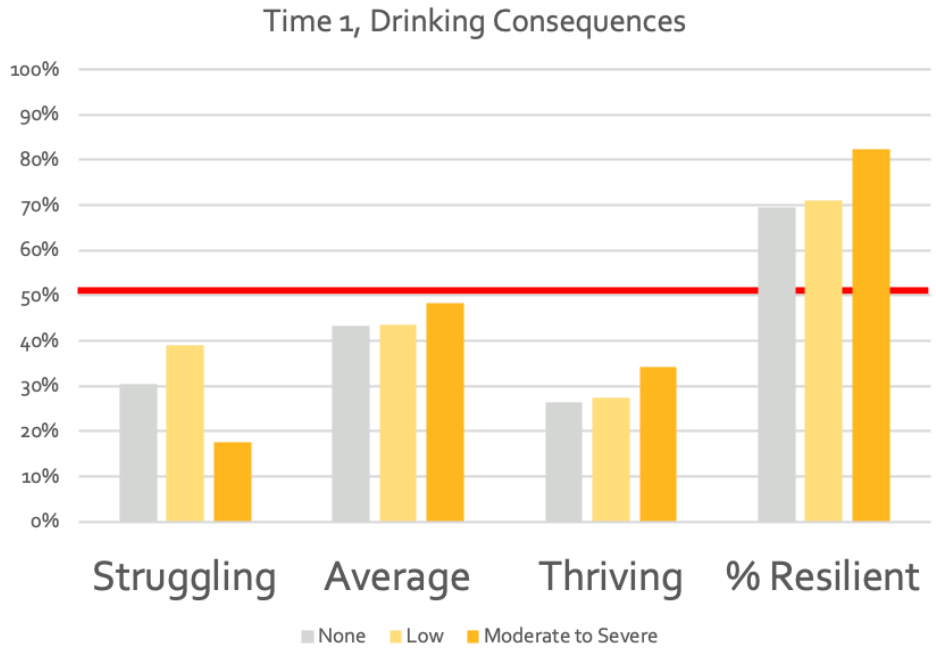
	Consequences of Alcohol Use			% Competent
Childhood Maltreatment	Struggling (*M* = 15.44)	Average (*M* = 6.09)	Thriving (*M* = 1.48)	
None	34 (28.33%)	43 (35.83%)	43 (35.83%)	71.66%
Low	15 (31.25%)	15 (31.25%)	18 (37.5%)	68.75%
Moderate-to-severe	16 (24.24%)	18 (27.27%)	32 (48.48%)	75.75%

$\chi^2(4) = 3.30$, $p = .51$, $n = 234$

Note. Percentages are within rows.

For all tables, for childhood maltreatment, participants in the low category endorsed any experience of low maltreatment and no experiences of moderate-to-severe maltreatment and participants in the moderate-to-severe category endorsed any experience of moderate-to-severe maltreatment.

Figure 7. Consequences of alcohol use by childhood maltreatment
Consequences of alcohol use by childhood maltreatment, Time 1



Consequences of alcohol use by childhood maltreatment, Time 2

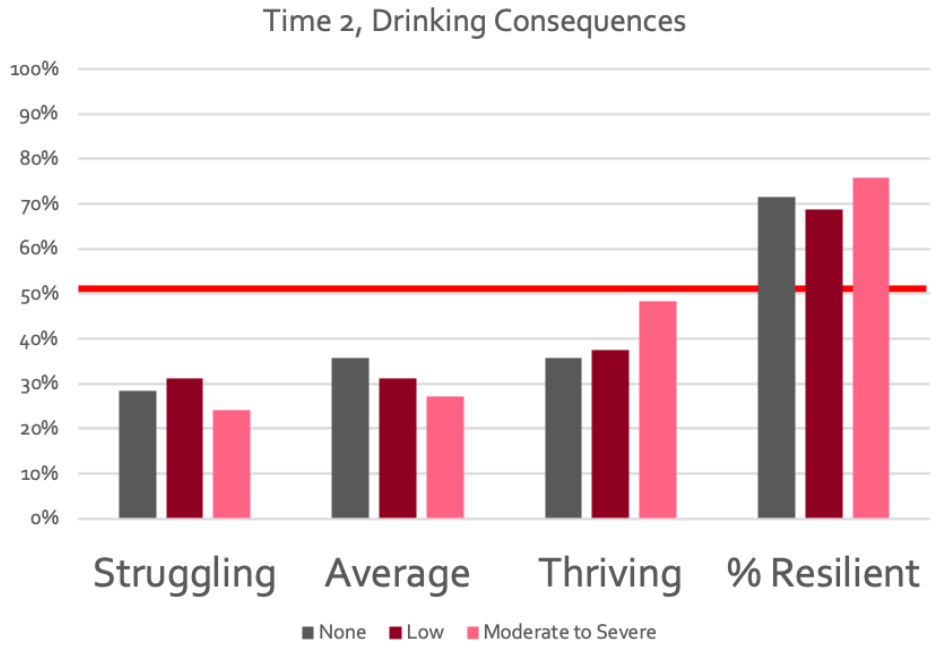
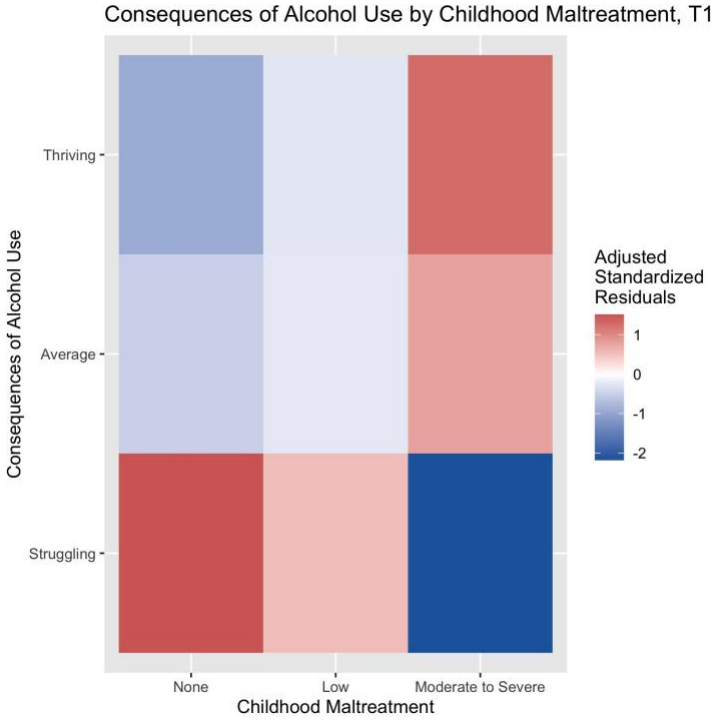


Figure 8. Adjusted standardized residuals for consequences of alcohol use

Adjusted standardized residuals for consequences of alcohol use by childhood maltreatment, Time 1



Adjusted standardized residuals for consequences of alcohol use by childhood maltreatment, Time 2

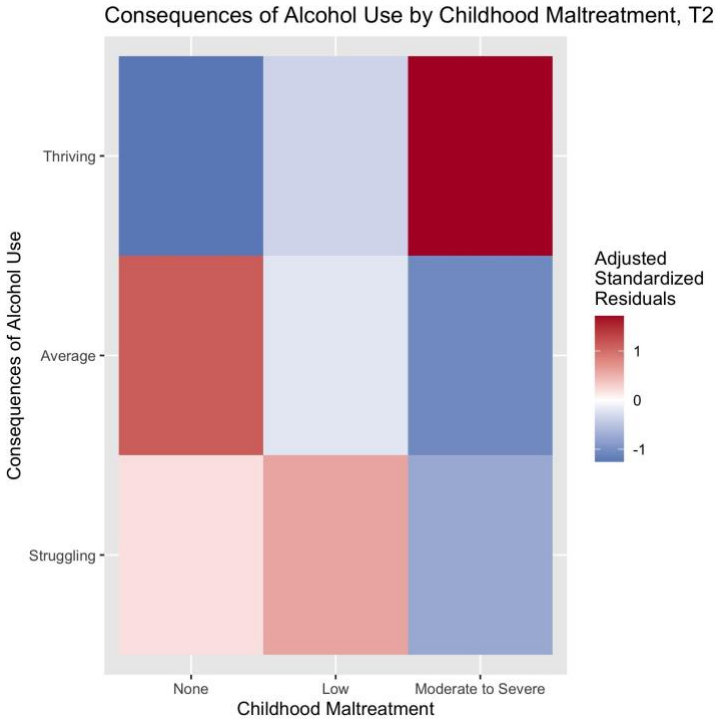


Table 7. Psychological functioning by childhood maltreatment

Psychological functioning by childhood maltreatment, Time 1

	Psychological Functioning			% Competent
Childhood Maltreatment (CTQ score)	Struggling (*M* = 2.23)	Average (*M* = 3.41)	Thriving (*M* = 4.39)	
None	39 (26.35%)	45 (30.41%)	64 (43.24%)	73.65%
Low	24 (34.78%)	26 (37.68%)	19 (27.54%)	65.22%
Moderate-to-severe	37 (43.53%)	32 (37.65%)	16 (18.82%)	56.47%

$\chi^2(4) = 16.62$, $p = .002$, $n = 302$

Note. Percentages are within rows.

Psychological functioning by childhood maltreatment, Time 2

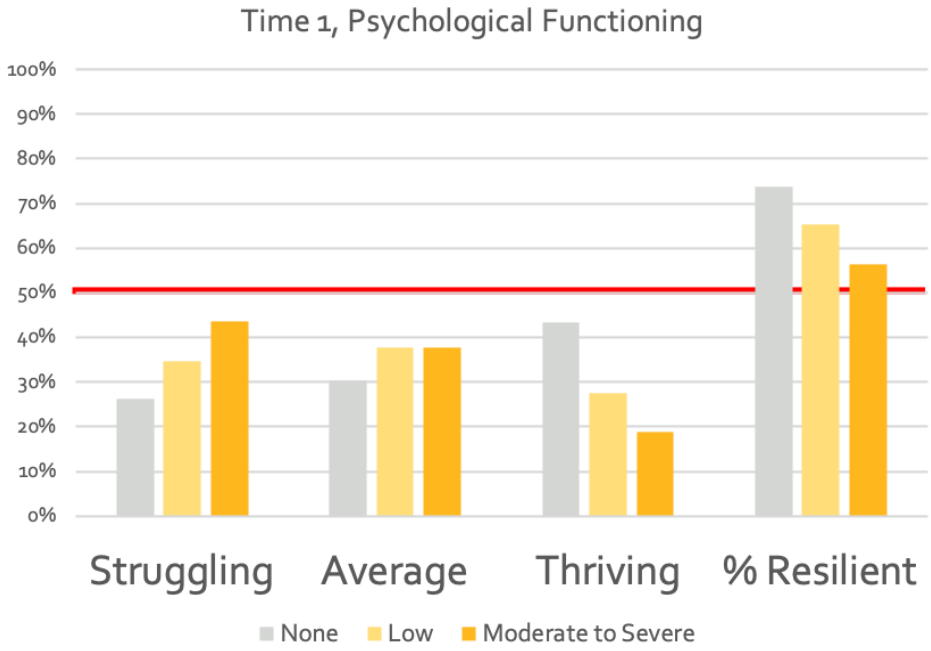
	Psychological Functioning			% Competent
Childhood Maltreatment	Struggling (*M* = 2.23)	Average (*M* = 3.48)	Thriving (*M* = 4.49)	
None	28 (23.33%)	48 (40%)	44 (36.67%)	76.67%
Low	16 (33.33%)	22 (45.83%)	10 (20.83%)	66.66%
Moderate-to-severe	26 (38.81%)	28 (41.79%)	13 (19.40%)	61.19%

$\chi^2(4) = 9.73$, $p = .0452$, $n = 235$

Note. Percentages are within rows.

For all tables, for childhood maltreatment, participants in the low category endorsed any experience of low maltreatment and no experiences of moderate-to-severe maltreatment and participants in the moderate-to-severe category endorsed any experience of moderate-to-severe maltreatment.

Figure 9. Psychological functioning by childhood maltreatment
Psychological functioning by childhood maltreatment, Time 1



Psychological functioning by childhood maltreatment, Time 2

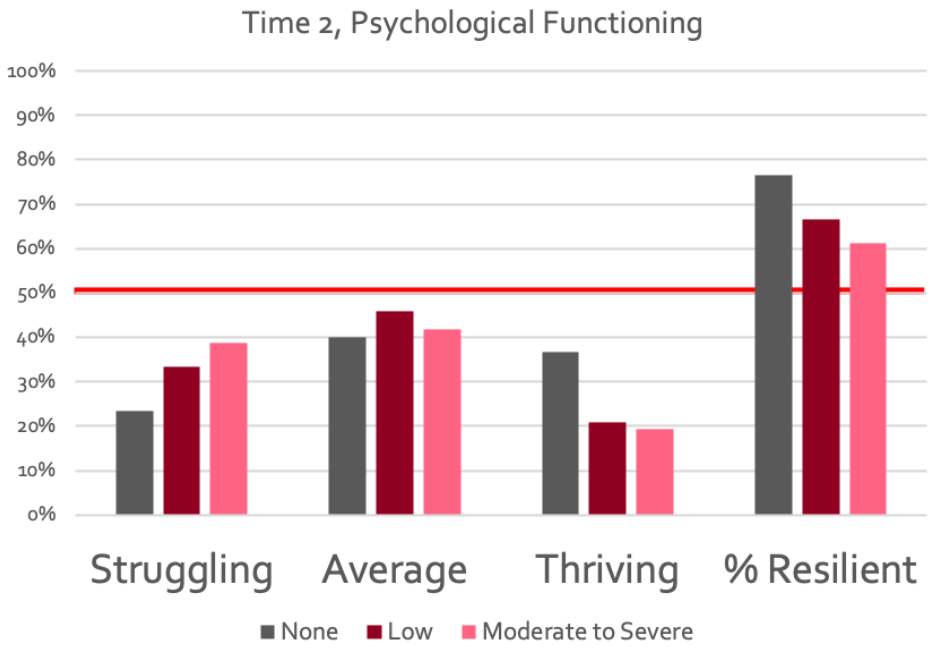
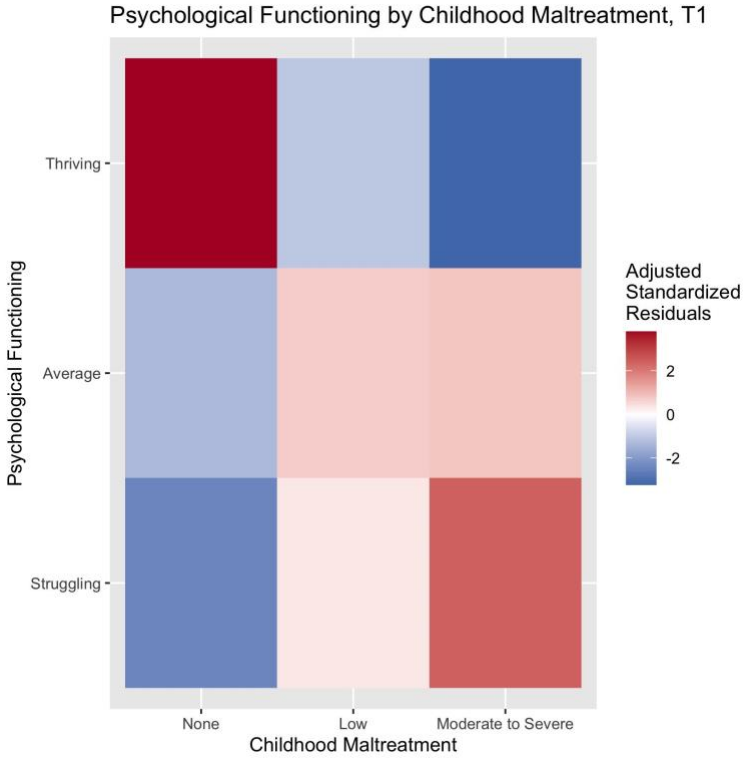


Figure 10. Adjusted standardized residuals for psychological functioning

Adjusted standardized residuals for psychological functioning by childhood maltreatment, Time 1



Adjusted standardized residuals for psychological functioning by childhood maltreatment, Time 2

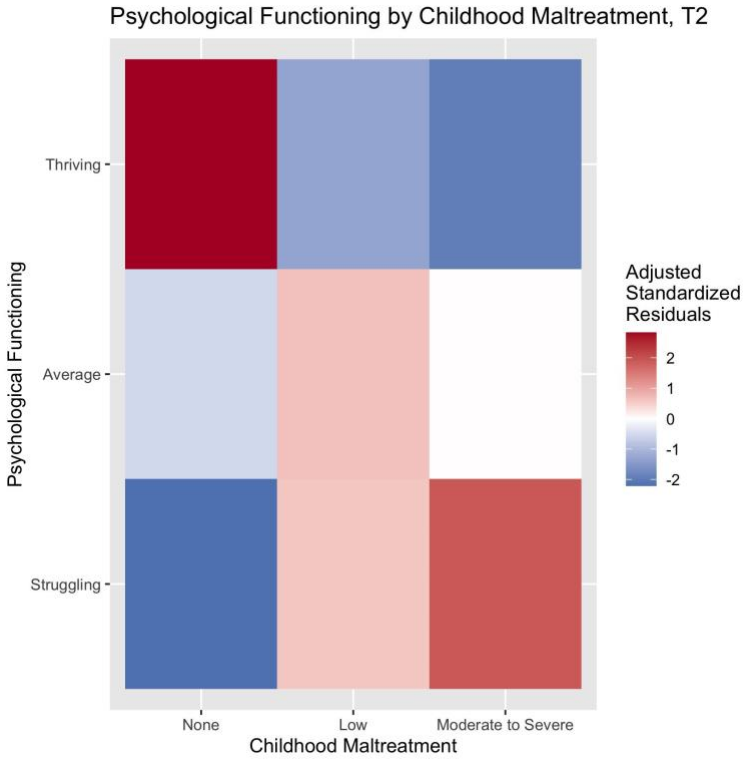


Table 8. Number of domains resilient by childhood maltreatment

Number of domains resilient by childhood maltreatment, Time 1

	Number of Domains Resilient					
Childhood Maltreatment (CTQ score)	0	1	2	3	4	5
None	0 (0)	6 (4.05%)	17 (11.49%)	33 (22.30%)	49 (33.11%)	43 (29.05%)
Low	0 (0)	4 (5.80%)	13 (18.84%)	18 (26.09%)	19 (27.54%)	15 (21.74%)
Moderate-to-severe	1 (1.18%)	9 (10.59%)	17 (20.00%)	23 (27.06%)	19 (22.35%)	16 (18.82%)

$\chi^2(10) = 14.778$, $p = .14$

Note. Percentages are within rows.

Number of domains resilient by childhood maltreatment, Time 2

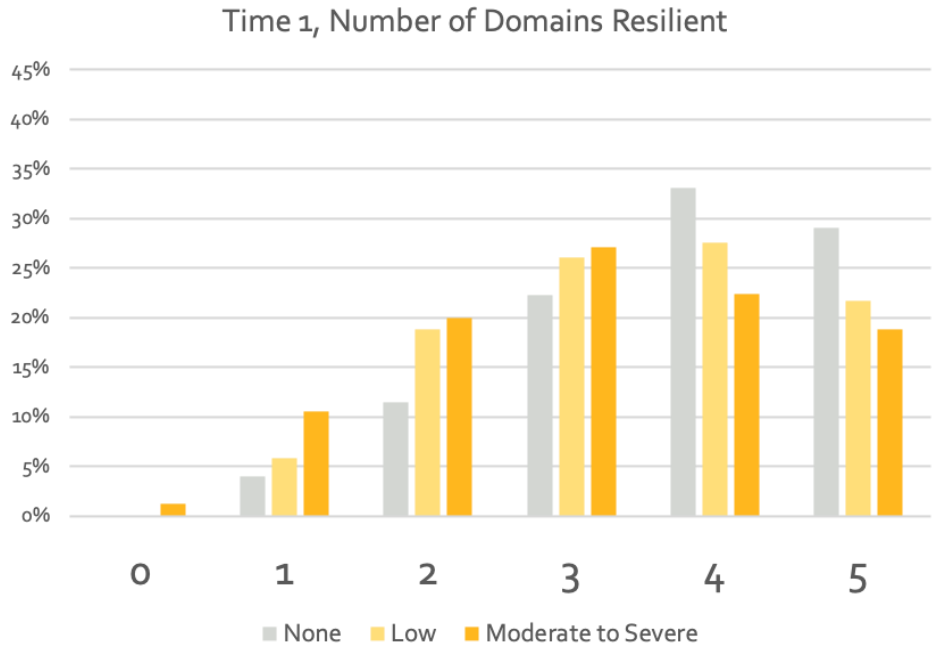
	Number of Domains Resilient					
Childhood Maltreatment (CTQ score)	0	1	2	3	4	5
None	0	6 (5%)	8 (6.67%)	34 (28.33%	40 (33.33%)	32 (26.67%)
Low	0	1 (2.08%)	8 (16.67%)	19 (39.58%)	12 (25%)	8 (16.67%)
Moderate-to-severe	0	8 (12.12%)	11 (16.67%)	14 (21.21%)	19 (27.79%)	14 (21.21%)

$\chi^2(10) = 15.96$, $p = .04$

Note. Percentages are within rows.

For all tables, for childhood maltreatment, participants in the low category endorsed any experience of low maltreatment and no experiences of moderate-to-severe maltreatment and participants in the moderate-to-severe category endorsed any experience of moderate-to-severe maltreatment.

Figure 11. Number of domains resilient by childhood maltreatment
Number of domains resilient by childhood maltreatment, Time 1



Number of domains resilient by childhood maltreatment, Time 2

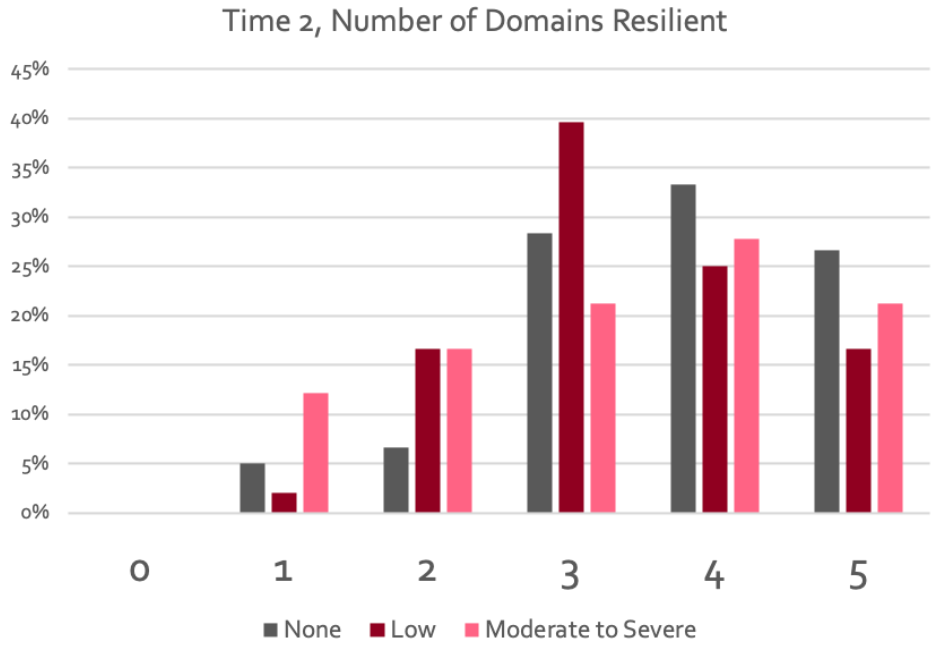
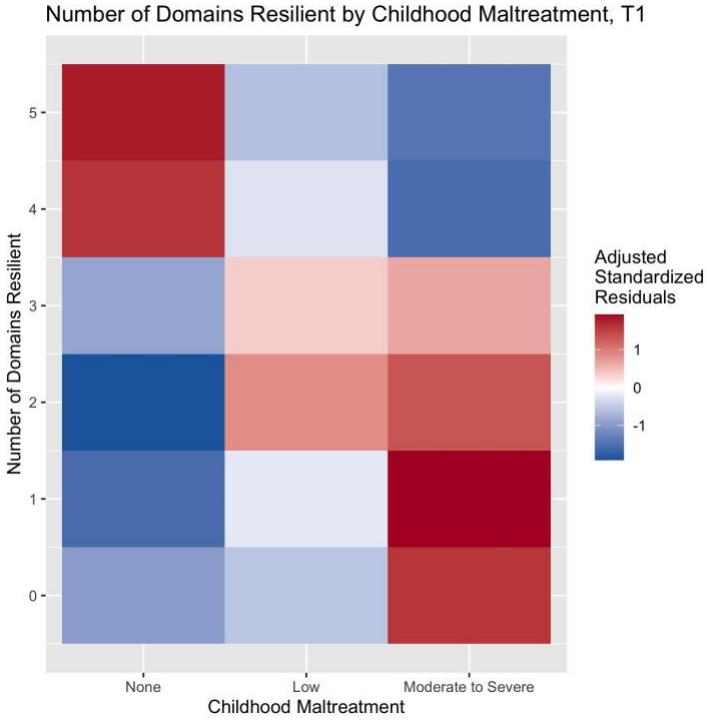


Figure 12. Adjusted standardized residuals for number of domains resilient
Adjusted standardized residuals for number of domains resilient by childhood maltreatment, Time 1



Adjusted standardized residuals for number of domains resilient by childhood maltreatment, Time 2

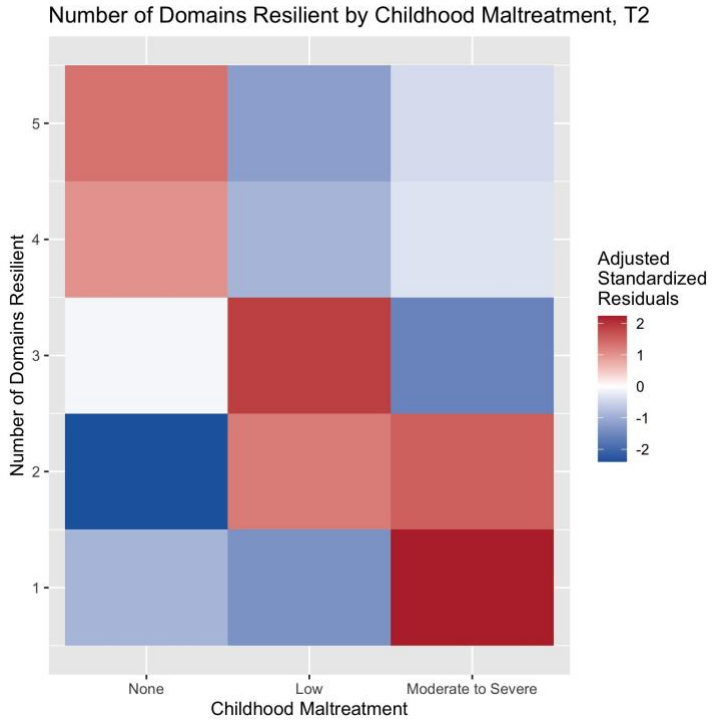


Table 9. Relational functioning by childhood maltreatment, across time

	Relational Functioning			% Resilient
Childhood Maltreatment (CTQ score)	Worsening ($d \leq -0.2$)	Stable	Improving ($d \geq 0.2$)	
None	63 (52.94%)	10 (8.40%)	46 (38.65%)	47.05%
Low	19 (39.58%)	5 (10.42%)	24 (50%)	60.42%
Moderate-to-severe	26 (38.81%)	7 (10.44%)	34 (50.75%)	61.19%

$\chi^2(4) = 4.51$, $p = .34$, $n = 234$
Note. Percentages are within rows.

For all tables, for childhood maltreatment, participants in the low category endorsed any experience of low maltreatment and no experiences of moderate-to-severe maltreatment and participants in the moderate-to-severe category endorsed any experience of moderate-to-severe maltreatment.

Figure 13. Relational functioning by childhood maltreatment, across time

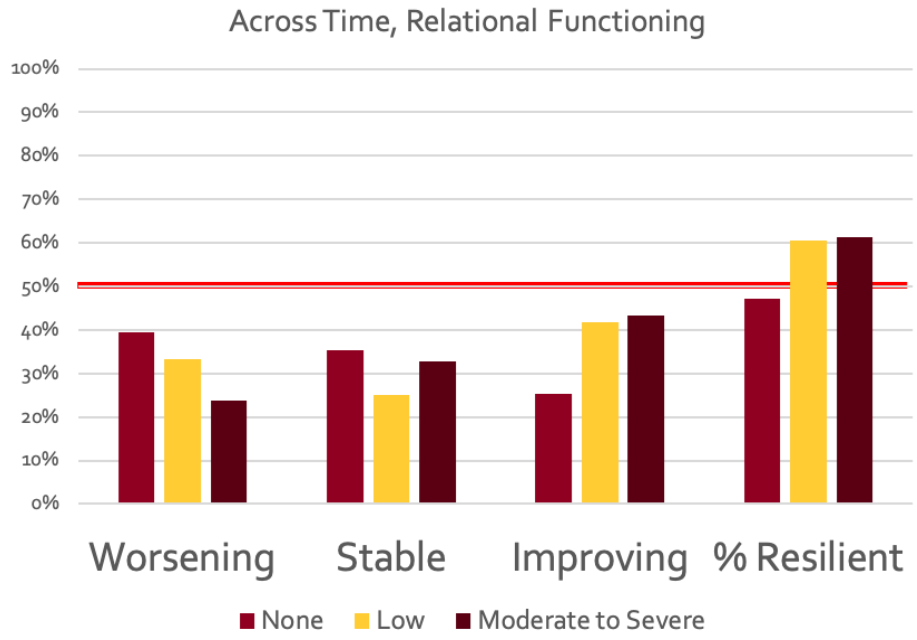


Figure 14. Adjusted standardized residuals for relational functioning
Adjusted standardized residuals for relational functioning by childhood maltreatment, across time

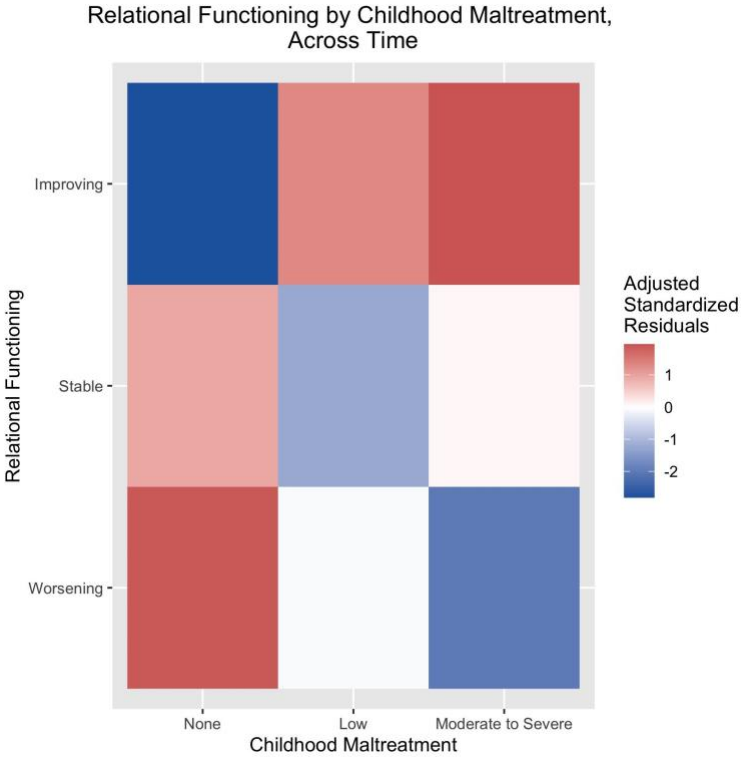


Table 9. Educational functioning by childhood maltreatment, across time

Childhood Maltreatment (CTQ score)	Educational Functioning			% Resilient
	Worsening ($d \leq -0.2$)	Stable	Improving ($d \geq 0.2$)	
None	58 (48.74%)	21 (17.65%)	40 (33.61%)	51.26%
Low	19 (39.58%)	9 (18.75%)	20 (41.67%)	60.42%
Moderate-to-severe	30 (44.78%)	11 (16.42%)	26 (38.81%)	55.23%

$\chi^2(4) = 1.45$, $p = .84$, $n = 234$
Note. Percentages are within rows.

For all tables, for childhood maltreatment, participants in the low category endorsed any experience of low maltreatment and no experiences of moderate-to-severe maltreatment and participants in the moderate-to-severe category endorsed any experience of moderate-to-severe maltreatment.

Figure 15. Educational functioning by childhood maltreatment, across time

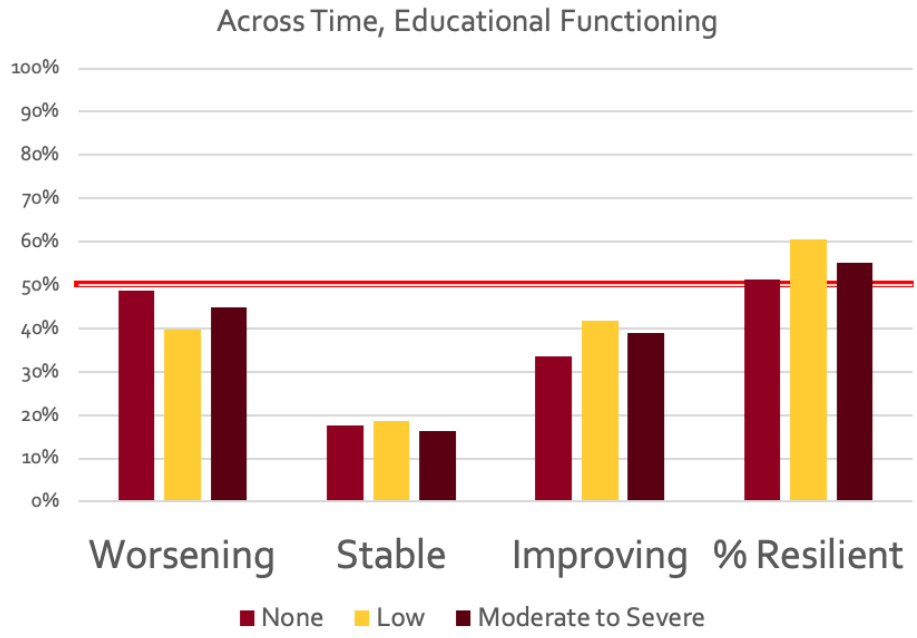


Figure 16. Adjusted standardized residuals for educational functioning
Adjusted standardized residuals for educational functioning by childhood maltreatment, across time

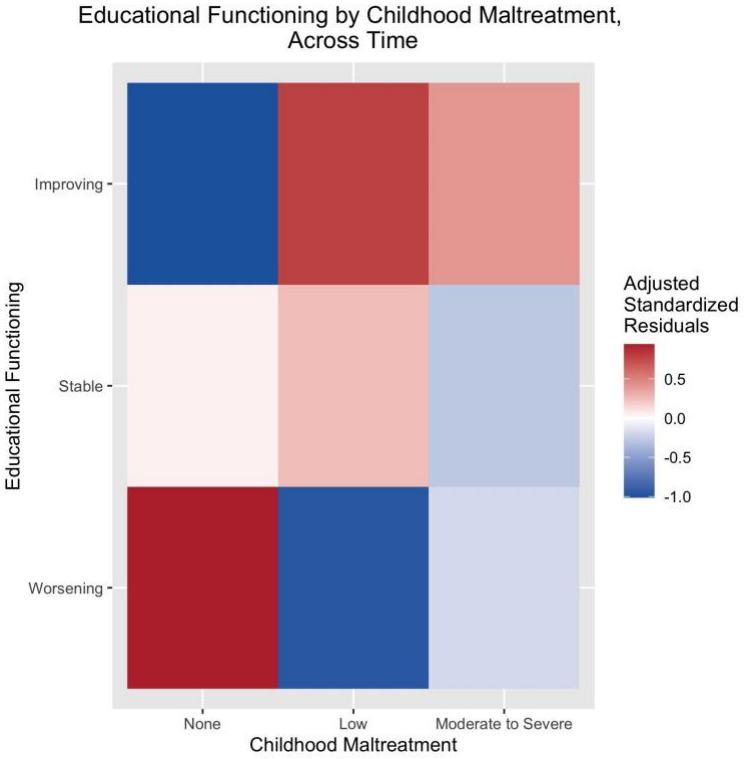


Table 10. Autonomy by childhood maltreatment, across time

	Autonomy			% Resilient
Childhood Maltreatment (CTQ score)	Worsening ($d \leq -0.2$)	Stable	Improving ($d \geq 0.2$)	
None	46 (38.66%)	33 (27.73%)	40 (33.61%)	61.34%
Low	12 (25%)	16 (33.33%)	20 (41.67%)	75.00%
Moderate-to-severe	28 (42.42%)	12 (18.18%)	26 (39.39%)	57.57%

$\chi^2(4) = 5.90$, $p = .21$, $n = 233$
Note. Percentages are within rows.

For all tables, for childhood maltreatment, participants in the low category endorsed any experience of low maltreatment and no experiences of moderate-to-severe maltreatment and participants in the moderate-to-severe category endorsed any experience of moderate-to-severe maltreatment.

Figure 17. Autonomy by childhood maltreatment, across time

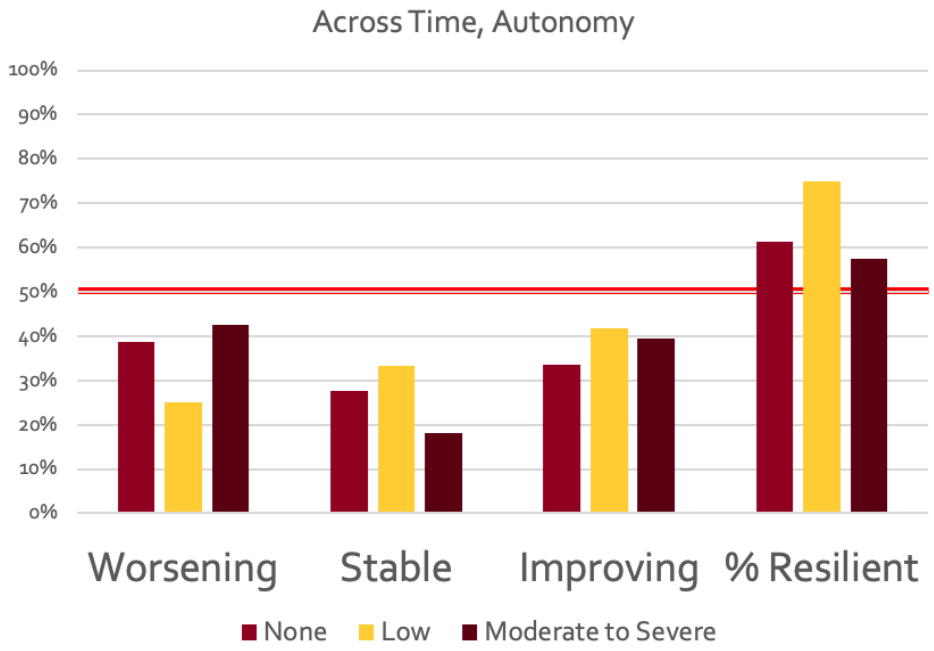


Figure 18. Adjusted standardized residuals for autonomy

Adjusted standardized residuals for autonomy by childhood maltreatment, across time

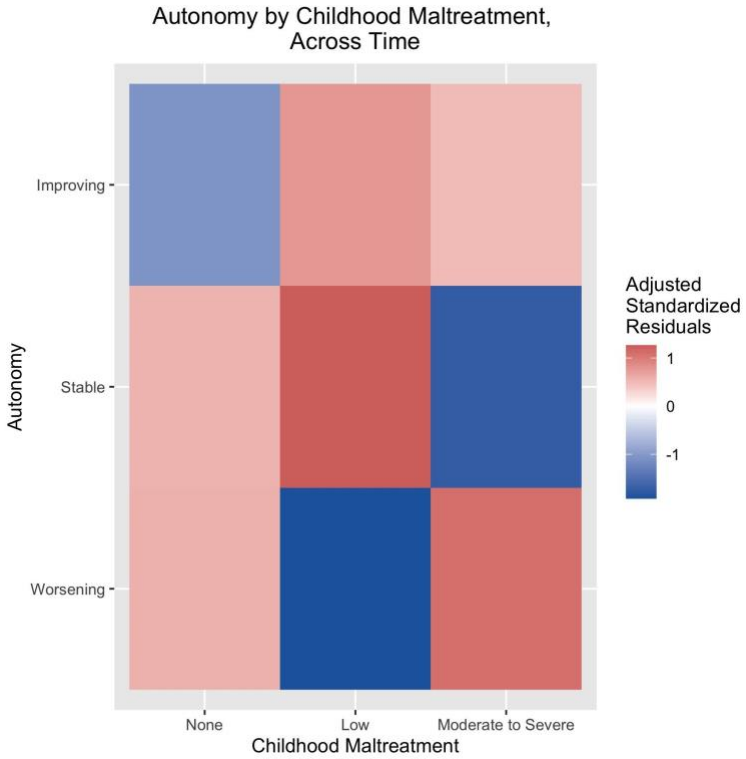


Table 11. Consequences of alcohol use by childhood maltreatment, across time

	Consequences of Alcohol Use			% Resilient
Childhood Maltreatment (CTQ score)	Worsening ($d \geq 0.2$)	Stable	Improving ($d \leq -0.2$)	
None	18 (15.13%)	53 (44.54%)	48 (40.34%)	84.88%
Low	11 (22.92%)	23 (47.92%)	14 (29.17%)	77.09%
Moderate-to-severe	17 (25.76%)	27 (40.91%)	22 (33.33%)	74.24%

$\chi^2(4) = 4.43$, $p = .35$, $n = 233$
Note. Percentages are within rows.

For all tables, for childhood maltreatment, participants in the low category endorsed any experience of low maltreatment and no experiences of moderate-to-severe maltreatment and participants in the moderate-to-severe category endorsed any experience of moderate-to-severe maltreatment.

Figure 19. Consequences of alcohol use by childhood maltreatment, across time

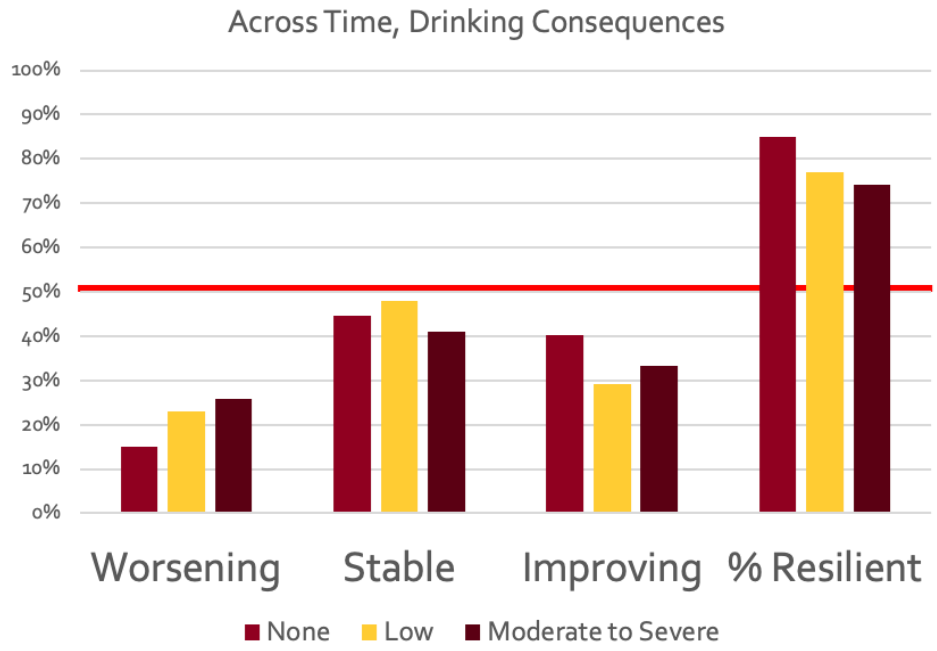


Figure 20. Adjusted standardized residuals for consequences of alcohol use
Adjusted standardized residuals for consequences of alcohol use by childhood maltreatment, across time

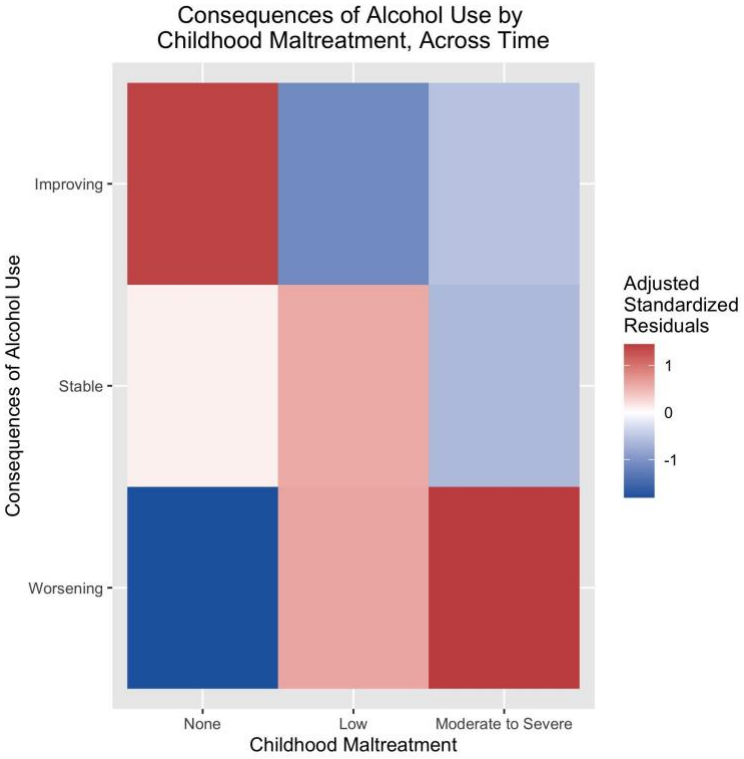


Table 12. Psychological functioning by childhood maltreatment, across time

	Psychological Functioning			% Resilient
Childhood Maltreatment (CTQ score)	Struggling ($d \leq -0.2$)	Average (M = 3.41)	Improving ($d \geq 0.2$)	
None	54 (45.38%	16 (13.45%)	49 (41.18%)	54.63%
Low	16 (33.33%)	7 (14.58%)	25 (52.08%)	66.66%
Moderate-to-severe	24 (35.82%)	4 (5.97%)	39 (58.21%)	64.18%

$\chi^2(4) = 6.99$, $p = .14$, $n = 234$
Note. Percentages are within rows.

For all tables, for childhood maltreatment, participants in the low category endorsed any experience of low maltreatment and no experiences of moderate-to-severe maltreatment and participants in the moderate-to-severe category endorsed any experience of moderate-to-severe maltreatment.

Figure 21. Psychological functioning by childhood maltreatment, across time

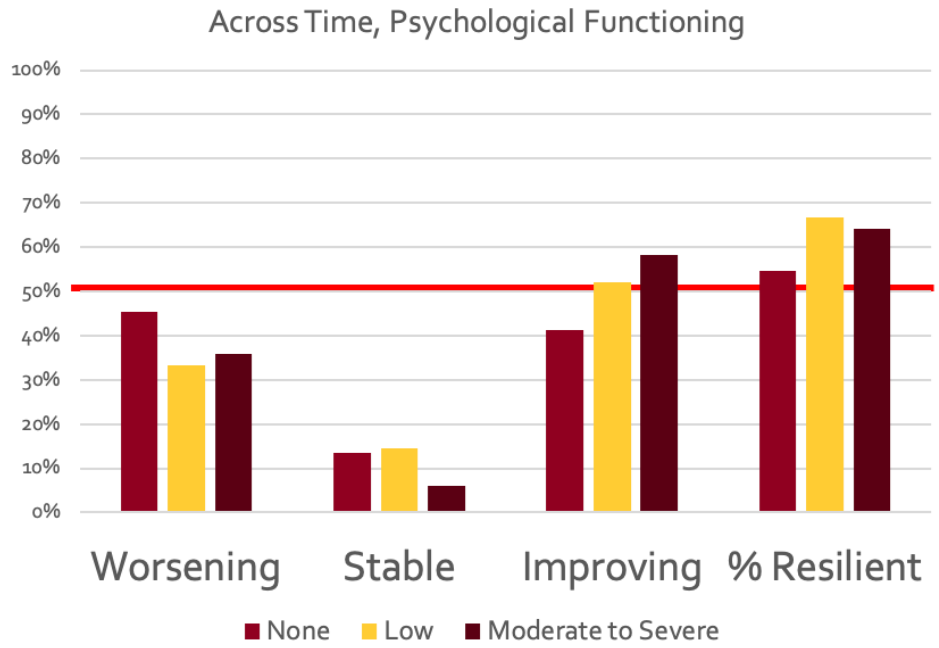


Figure 22. Adjusted standardized residuals for psychological functioning
Adjusted standardized residuals for psychological functioning by childhood maltreatment, across time

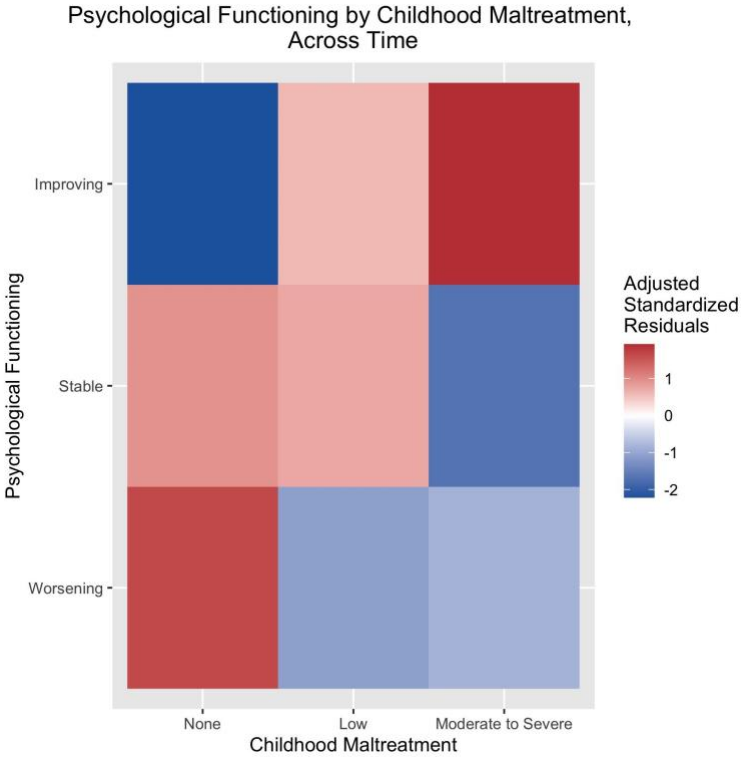


Table 13. Hierarchical Multiple Regression Analyses Testing Moderators of the Relations Between Childhood Maltreatment and Relational Functioning

	T2 Relational Functioning		
	Step 1	Step 2	Step 3
	B (*SE*) [95% CI]	*B* (*SE*) [95% CI]	*B* (*SE*) [95% CI]
	R^2 = .19	ΔR^2 = .12	ΔR^2 = .01
T1 Relational Functioning	.46*** (.07) [-.32, .60]	.38*** (.07) [.25, .52]	.38*** (.07) [.23, .53]
Childhood Maltreatment		.12 (.06) [-.01, .24]	.12 (.07) [-.01, .25]
T2 Recent Stressors		-.08 (.12) [-.38, .22]	-.08 (.12) [-.38, .21]
T2 Emotional Regulation Difficulties		-.12 (.07) [-.26, .01]	-.12 (.07) [-.26, .02]
T2 Meaning-Making		.14 (.08) [-.03, .31]	.14 (.08) [-.02, .30]
T2 Social Support		.18 (.08) [-.003, .35]	.17 (.09) [-.03, .37]
Childhood Maltreatment x T2 Recent Stressors			-.002 (.08) [-.16, .17]
Childhood Maltreatment x T2 Emotional Regulation			.02 (.07) [-.13, .16]
Childhood Maltreatment x T2 Meaning-Making			.05 (.07) [-.09, .20]
Childhood Maltreatment x T2 Social Support			.03 (.07) [-.12, .17]

Note. *** $p < .0001$, ** $p < .01$, * $p < .05$. Coefficients are unstandardized.

Table 14. Hierarchical Multiple Regression Analyses Testing Moderators of the Relations Between Childhood Maltreatment and Educational Functioning

	T2 Educational Functioning		
	Step 1	Step 2	Step 3
	B (*SE*) [95% CI]	*B* (*SE*) [95% CI]	*B* (*SE*) [95% CI]
	R^2 = .13	ΔR^2 = .08	ΔR^2 = .01
T1 Educational Functioning	.35*** (.06) [.23, .48]	.31*** (.06) [.19, .42]	.31*** (.06) [.19, .42]
Childhood Maltreatment		-.003 (.07) [-.15, .14]	.02 (.08) [-.14, .19]
T2 Recent Stressors		-.19 (.09) [-.40, .03]	-.18 (.09) [-.39, .02]
T2 Emotional Regulation Difficulties		.03 (.08) [-.13, .18]	.03 (.07) [-.11, .18]
T2 Meaning-Making		.10 (.09) [-.09, .30]	.10 (.09) [-.08, .30]
T2 Social Support		.09 (.09) [-.11, .29]	.09 (.09) [-.12, .30]
Childhood Maltreatment x T2 Recent Stressors			-.10 (.06) [-.23, .03]
Childhood Maltreatment x T2 Emotional Regulation			.004 (.07) [-.12, .13]
Childhood Maltreatment x T2 Meaning-Making			-.005 (.07) [-.14, .13]
Childhood Maltreatment x T2 Social Support			.02 (.06) [-.10, .15]

Note. *** $p < .0001$, ** $p < .01$, * $p < .05$. Coefficients are unstandardized.

Table 15. Hierarchical Multiple Regression Analyses Testing Moderators of the Relations Between Childhood Maltreatment and Autonomy

	T2 Autonomy		
	Step 1	Step 2	Step 3
	B (SE) [95% CI]	*B (SE)* [95% CI]	*B (SE)* [95% CI]
	$R^2 = .20$	$\Delta R^2 = .06$	$\Delta R^2 = .02$
T1 Autonomy	.44*** (.05) [.33, .55]	.40*** (.05) [.29, .50]	.40*** (.05) [.29, .51]
Childhood Maltreatment		.09 (.08) [-.09, .27]	.13 (.08) [-.04, .31]
T2 Recent Stressors		-.05 (.06) [-.18, .07]	-.06 (.06) [-.19, .07]
T2 Emotional Regulation Difficulties		-.18* (.07) [-.33, -.02]	-.17* (.08) [-.32, -.02]
T2 Meaning-Making		.09 (.07) [-.04, .24]	.09 (.07) [-.05, .22]
T2 Social Support		-.02 (.11) [-.27, .23]	-.02 (.10) [-.25, .20]
Childhood Maltreatment x T2 Recent Stressors			-.01 (.07) [-.15, .13]
Childhood Maltreatment x T2 Emotional Regulation			.02 (.08) [-.15, .19]
Childhood Maltreatment x T2 Meaning-Making			-.01 (.07) [-.16, .15]
Childhood Maltreatment x T2 Social Support			.10 (.08) [-.07, .27]

Note. *** $p < .0001$, ** $p < .01$, * $p < .05$. Coefficients are unstandardized.

Table 16. Hierarchical Multiple Regression Analyses Testing Moderators of the Relations Between Childhood Maltreatment and Consequences of Alcohol Use

	T2 Consequences of Alcohol Use		
	Step 1	Step 2	Step 3
	B (SE) [95% CI]	*B (SE)* [95% CI]	*B (SE)* [95% CI]
	$R^2 = .31$	$\Delta R^2 = .03$	$\Delta R^2 = .02$
T1 Consequences of Alcohol Use	.52*** (.05) [.43, .62]	.52*** (.05) [.42, .62]	.52*** (.05) [.42, .62]
Childhood Maltreatment		.04 (.05) [-.07, .15]	.02 (.06) [-.11, .13]
T2 Recent Stressors		.05 (.08) [-.14, .23]	.04 (.07) [-.13, .21]
T2 Emotional Regulation Difficulties		.09 (.09) [-.11, .29]	.08 (.09) [-.11, .28]
T2 Meaning-Making		-.03 (.07) [-.17, .11]	-.03 (.07) [-.17, .11]
T2 Social Support		.08 (.06) [-.06, .21]	.07 (.07) [-.07, .22]
Childhood Maltreatment x T2 Recent Stressors			.09 (.05) [-.01, .19]
Childhood Maltreatment x T2 Emotional Regulation			-.02 (.06) [-.15, .10]
Childhood Maltreatment x T2 Meaning-Making			.04 (.07) [-.11, .20]
Childhood Maltreatment x T2 Social Support			-.05 (.07) [-.21, .11]

Note. *** $p < .0001$, ** $p < .01$, * $p < .05$. Coefficients are unstandardized.

Table 17. Hierarchical Multiple Regression Analyses Testing Moderators of the Relations Between Childhood Maltreatment and Psychological Functioning

	T2 Psychological Functioning		
	Step 1	Step 2	Step 3
	B (SE) [95% CI]	*B (SE)* [95% CI]	*B (SE)* [95% CI]
	$R^2 = .16$	$\Delta R^2 = .22$	$\Delta R^2 = .01$
T1 Psychological Functioning	.41** (.08) [.23, .58]	.28* (.10) [.05, .51]	.28* (.10) [.05, .50]
Childhood Maltreatment		.05 (.07) [-.11, .20]	.04 (.08) [-.12, .21]
T2 Recent Stressors		-.26* (.09) [-.48, -.04]	-.27* (.09) [-.49, -.04]
T2 Emotional Regulation Difficulties		-.15 (.08) [-.33, .03]	-.15 (.08) [-.33, .04]
T2 Meaning-Making		.23 (.10) [-.004, .47]	.23 (.10) [-.01, .47]
T2 Social Support		.07 (.10) [-.15, .29]	.07 (.10) [-.15, .30]
Childhood Maltreatment x T2 Recent Stressors			.04 (.06) [-.07, .15]
Childhood Maltreatment x T2 Emotional Regulation			.02 (.09) [-.16, .21]
Childhood Maltreatment x T2 Meaning-Making			.00 (.07) [-.14, .13]
Childhood Maltreatment x T2 Social Support			.03 (.07) [-.13, .18]

Note. *** $p < .0001$, ** $p < .01$, * $p < .05$. Coefficients are unstandardized.

Appendix A: Informed Consent

Investigator Team Contact Information

Investigator Name: Dr. Patricia Frazier, PhD, LP
Student Investigator Name: Addie Merians
Investigator Departmental Affiliation: Psychology
Email Address: meria004@umn.edu
Email Address: pfraz@umn.edu

Supported by: This research is supported by the Psychology Department of the University of Minnesota.

Key Information About This Research Study

The following is a short summary to help you decide whether or not to be a part of this research study. More detailed information is listed later on this form.

What is research?

The goal of research is to learn new things in order to help people in the future. Investigators learn things by following the same plan with a number of participants, so they do not usually make changes to the plan for individual research participants. You, as an individual, may or may not be helped by volunteering for a research study.

Why am I being invited to take part in this research study?

We are asking you to take part in this research study because we are interested in how college students are doing college. We are interested in the connections between childhood experiences and functioning in college. Since you are a college student, we are interested in getting your input on how you are doing!

What should I know about a research study?

- Someone will explain this research study to you.
- Whether or not you take part is up to you.
- You can choose not to take part.
- You can agree to take part and later change your mind.
- Your decision will not be held against you.
- You can ask all the questions you want before you decide

Why is this research being done?

There has been a great deal of research the documents how earlier life experiences are related to adjustment to college. By understanding resilience better, we can also better help students by creating interventions to help bolster their resilience.

How long will the research last?
We expect that you will be in this research study for the fall semester of 2019. However, you only need to take two surveys, one in the beginning of the semester and one at the end. Both surveys will each take you less than an hour to complete.

What will I need to do to participate?
You will be asked to answer two surveys with several measures that assess your childhood experiences and life functioning in college. You will be asked to fill out these surveys as completely and accurately as you feel comfortable.
More detailed information about the study procedures can be found under "What happens if I say yes, I want to be in this research?"

Is there any way that being in this study could be bad for me?
We do not foresee this study causing harm. However, we will be asking you about sensitive topics, such as childhood adversity (including childhood neglect and childhood physical, emotional, and sexual abuse), and we recognize that this may cause you to have some negative feelings. We will provide you with a list of resources for additional support once the interview has ended, in case you experience distress and wish to seek help.

Will being in this study help me in any way?
There are no benefits to you from your taking part in this research. We cannot promise any benefits to others from your taking part in this research. However, possible benefits to others include developing an intervention to support those who have experienced childhood adversity.

What happens if I do not want to be in this research?
You can decide not to participate.

Detailed Information About This Research Study
The following is more detailed information about this study in addition to the information listed above.

How many people will be studied?
We plan to survey 750 students at the University of Minnesota.

What happens if I say "Yes, I want to be in this research"?
Once you agree to be in the study, you will be taken directly to the first survey. This survey will take you less than sixty minutes to complete. After you complete the first survey, you will not have to do anything until the end of the semester. At the end of the

semester, you will receive another survey via email that will take less than 60 minutes to complete. You will be able to take these surveys whenever and wherever you want to.

What happens if I say "Yes", but I change my mind later?
You can leave the research study at any time and no one will be upset by your decision.

Will it cost me anything to participate in this research study?
There will be no cost to you for any of the study activities or procedures.

Will being in this study help me in any way? (Detailed Benefits)
There are no benefits to you from your taking part in this research. We cannot promise any benefits to others from your taking part in this research. However, possible benefits to others include potentially developing tools to help students adjust to college.

What happens to the information collected for the research?
Efforts will be made to limit the use and disclosure of your personal information, including research study and medical records, to people who have a need to review this information. We cannot promise complete confidentiality. Organizations that may inspect and copy your information include the Institutional Review Board (IRB), the committee that provides ethical and regulatory oversight of research, and other representatives of this institution, including those that have responsibilities for monitoring or ensuring compliance. . We will collect your x500 with your survey data so that we can link both surveys together. However, if data are shared, your x500 will be removed and a code will be generated to preserve your privacy.

Whom do I contact if I have questions, concerns or feedback about my experience?
This research has been reviewed and approved by an IRB within the Human Research Protections Program (HRPP). To share feedback privately with the HRPP about your research experience, call the Research Participants' Advocate Line at 612-625-1650 (Toll Free: 1-888-224-8636) or go to z.umn.edu/participants. You are encouraged to contact the HRPP if:

- Your questions, concerns, or complaints are not being answered by the research team.
- You cannot reach the research team.
- You want to talk to someone besides the research team.
- You have questions about your rights as a research participant.
- You want to get information or provide input about this research.

Will I have a chance to provide feedback after the study is over?
The HRPP may ask you to complete a survey that asks about your experience as a

research participant. You do not have to complete the survey if you do not want to. If you do choose to complete the survey, your responses will be confidential. We will collect your x500 with your survey data so that we can link both surveys together. However, if data is shared, your x500 will be removed and a code will be generated to preserve your privacy.

If you are not asked to complete a survey, but you would like to share feedback, please contact the study team or the HRPP. See the "Investigator Contact Information" of this form for study team contact information and "Whom do I contact if I have questions, concerns or feedback about my experience?" of this form for HRPP contact information.

Will I be compensated for my participation?

If you agree to take part in this research study, we will award you one Research Experience Program (REP) point per estimated half hour of research for your time and effort. This total study is worth 4 REP points. If you only complete one survey, you will receive 2 REP points.

Your signature documents your permission to take part in this research. By entering your name in the box below, you are signing this document and agreeing to participate in the research.

Appendix B: Measures

Childhood Trauma Questionnaire

When I was growing up…

1. I didn't have enough to eat.
2. I knew that there was someone to take care of me and protect me.
3. People in my family called me things like "stupid," "lazy," or "ugly."
4. My parents were too drunk or high to take care of the family.
5. There was someone in my family who helped me feel that I was important or special.
6. I had to wear dirty clothes.
7. I felt loved.
8. I thought that my parents wished I had never been born.
9. I got hit so hard by someone in my family that I had to see a doctor or go to the hospital.
10. There was nothing I wanted to change about my family.
11. People in my family hit me so hard that I left me with bruises or marks.
12. I was punished with a belt, a board, a cord, or some other hard object.
13. People in my family looked out for each other.
14. People in my family said hurtful or insulting things to me.
15. I believe that I was physically abused.
16. I had the perfect childhood.
17. I got hit or beaten so badly that it was noticed by someone like a teacher, neighbor, or doctor.
18. I felt that someone in my family hated me.
19. People in my family felt close to each other.
20. Someone tried to touch me in a sexual way or tried to make me touch them.
21. I had the best family in the world.
22. Someone threatened to hurt me or tell lies about me unless I did something sexual with them.
23. Someone tried to make me do sexual things or watch sexual things.
24. Someone molested me.
25. I believe that I was emotionally abused.
26. There was someone to take me to the doctor if I needed it.
27. I believe that I was sexually abused.
28. My family was a source of strength and support.

5-point Likert scale ranging from "Never true" to "Very often true"

College Adjustment Questionnaire

Listed below are some statements that describe how college students might be feeling about their experience with college. **Please use the rating scale below to indicate how accurately each statement describes you *at this point in time***. Please read each statement carefully.

1: very inaccurate
2: moderately inaccurate
3: neither inaccurate nor accurate
4: moderately accurate
5: very accurate

1. I am succeeding academically.
2. I don't have as much of a social life as I would like.
3. I feel that I am doing well emotionally since coming to college.
4. I am happy with my social life.
5. I am doing well in my classes.
6. I am happy with how things have been going in college.
7. I am happy with the grades I am earning in my classes.
8. I feel that I am emotionally falling apart in college.
9. I have had a hard time making friends since coming to college.
10. I am as socially engaged as I would like to be.
11. I have felt the need to seek emotional counseling since coming to college.
12. I am meeting my academic goals.
13. I have performed poorly in my classes since starting college.
14. I am satisfied with my social relationships.

Ryff's Scales of Psychological Well-being

The following set of statements deals with how you might feel about yourself and your life. Please remember that there are neither right nor wrong answers.

6 point Likert scale from "Strongly disagree" to "Strongly agree"

1. I am not afraid to voice my opinions, even when they are in opposition to the opinions of most people.
2. My decisions are not usually influenced by what everyone else is doing.
3. I tend to worry about what other people think of me.
4. Being happy with myself is more important to me than having others approve of me.
5. I tend to be influenced by people with strong opinions.
6. I have confidence in my opinions, even if they are contrary to the general consensus.
7. It's difficult for me to voice my own opinions on controversial matters.
8. I often change my mind about decisions if my friends or family disagree.
9. I judge myself by what I think is important, not by the values of what others think is important.

Drinker Inventory of Consequences

Please indicate how often you have experienced the following due to your drinking or

drug use during the last year…
Never - once - twice - 3 to 5 times - 6 to 9 times - 10 or more times

1. Had a hangover
2. Performed poorly on a test or important project
3. Been in trouble with police, residence hall, or other college authorities
4. Damaged property, pulled fire alarm, etc.
5. Got into an argument or fight
6. Got nauseated or vomited
7. Driven a car while under the influence
8. Missed a class
9. Been criticized by someone I know
10. Thought I might have a drinking or drug problem
11. Had memory loss
12. Done something I later regretted
13. Been arrested for DWI/DUI
14. Had been taken advantage of sexually
15. Have taken advantage of another sexually
16. Tried unsuccessfully to stop using
17. Seriously thought about suicide
18. Seriously tried to commit suicide
19. Been hurt or injured

Difficulties in Emotion Regulation Scale

Please indicate how often the following statements apply to you.
Almost never - sometimes - about half the time - most of the time - almost always

1. I am clear about my feelings.
2. I pay attention to how I feel.
3. I experience my emotions as overwhelming and out of control.
4. I have no idea how I am feeling.
5. I have difficulty making sense out of my feelings.
6. I am attentive to my feelings.
7. I am confused about how I feel.
8. I care about what I am feeling.
9. I am confused about how I feel.
10. When I’m upset, I acknowledge my emotions.
11. When I’m upset, I become angry with myself for feeling that way.
12. When I’m upset, I become embarrassed for feeling that way.
13. When I’m upset, I have difficulty getting work done.
14. When I’m upset, I become out of control.
15. When I’m upset, I believe that I will remain that way for a long time.

16. When I'm upset, I believe that I will end up feeling very depressed.
17. When I'm upset, I believe that my feelings are valid and important.
18. When I'm upset, I have difficulty focusing on other things.
19. When I'm upset, I feel out of control.
20. When I'm upset, I can still get things done.
21. When I'm upset, I feel ashamed at myself for feeling that way,
22. When I'm upset, I know that I can find a way to eventually feel better.
23. When I'm upset, I feel like I am weak.
24. When I'm upset, I feel like I can remain in control of my behaviors.
25. When I'm upset, I feel guilty for feeling that way.
26. When I'm upset, I have difficulty concentrating.
27. When I'm upset, I have difficulty controlling my behaviors.
28. When I'm upset, I believe there is nothing I can do to make myself feel better.
29. When I'm upset, I become irritated at myself for feeling that way.
30. When I'm upset, I start to feel very bad about myself.
31. When I'm upset, I believe that wallowing in it is all I can do.
32. When I'm upset, I lose control over my behavior.
33. When I'm upset, I have difficulty thinking about anything else.
34. When I'm upset, I take time to figure out what I'm really feeling.
35. When I'm upset, it takes me a long time to feel better.
36. When I'm upset, my emotions feel overwhelming.

Meaning in Life Questionnaire

Please take a moment to think about what makes your life feel important to you. Please respond to the following statements as truthfully and accurately as you can, and also please remember that these are very subjective questions and that there are no right or wrong answers. Please answer according to the scale below:

Absolutely untrue - mostly untrue - somewhat untrue - can't say true or false - somewhat true - mostly true - absolutely true

1. I understand my life's meaning.
2. My life has a clear sense of purpose.
3. I have a good sense of what makes my life meaningful.
4. I have discovered a satisfying life purpose.
5. My life has no clear purpose.

Multidimensional Scale of Perceived Social Support

We are interested in how you feel about the following statements. Read each statement carefully. Indicate how you feel each statement reflects how you felt when you were growing up.

Very strongly disagree - strongly disagree - mildly disagree - neutral - mildly agree -

strongly agree - very strongly agree

1. There was a special person who was around when I was in need.
2. There was a special person with whom I shared my joys and sorrows.
3. My family really tried to help me.
4. I got the emotional help and support I needed from my family.
5. I had a special person who was a real source of comfort to me.
6. My friends really tried to help me.
7. I could count on my friends when things went wrong.
8. I talked about my problems with my family.
9. I had friends with whom I shared my joys and sorrows.
10. There was a special person in my life who cared about my feelings.
11. My family was willing to help me make decisions.
12. I talked about my problems with my friends.

Current Stressors

Over the past semester, have any of the following been traumatic or very difficult for you to handle?

Yes - no

1. Academics
2. Career-related issue
3. Death of a family member or friend
4. Family problems
5. Intimate relationships
6. Other social relationships
7. Finances
8. Health problem of a family member or partner
9. Personal appearance
10. Personal health issue
11. Sleep difficulties